NAVAL POSTGRADUATE SCHOOL

Monterey, California

THESIS

A STUDY OF CARRIER BASED AIRCRAFT READINESS SUSTAINABILITY IN THE EVENT OF EXTERNAL AIR LOGISTIC SUPPORT DEPRIVATION

by

Andrew Goodwin Mackel

June 1987

Thesis Advisor: Shu S. Liao

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

ADA184874

REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b RESTRICTIVE MARKINGS
2a SECURITY CLASSIFICATION AUTHORITY	3 DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited
2b DECLASSIFICATION/DOWNGRADING SCHEDULE	
4 PERFORMING ORGANIZATION REPORT NUMBER(S)	5 MONITORING ORGANIZATION REPORT NUMBER(S)
6a NAME OF PERFORMING ORGANIZATION Naval Postgraduate School	6b OFFICE SYMBOL (If applicable) Code 54
7a NAME OF MONITORING ORGANIZATION Naval Postgraduate School	
6c ADDRESS (City, State, and ZIP Code) Monterey, California 93943-5000	7b ADDRESS (City, State, and ZIP Code) Monterey, California 93943-5000
8a NAME OF FUNDING/SPONSORING ORGANIZATION	8b OFFICE SYMBOL (If applicable)
9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO	PROJECT NO	TASK NO	WORK UNIT ACCESSION NO

11 TITLE (Include Security Classification)

A STUDY OF CARRIER BASED AIRCRAFT READINESS SUSTAINABILITY IN THE EVENT OF EXTERNAL AIR LOGISTIC SUPPORT DEPRIVATION

12 PERSONAL AUTHOR(S)

Mackel, Andrew G.

13a TYPE OF REPORT	13b TIME COVERED	14 DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
Master's Thesis	FROM ____ TO ____	1987, June	262

16 SUPPLEMENTARY NOTATION

17 COSATI CODES			18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Carrier Aircraft Logistic Support System; Aircraft Readiness; CODIVOD Support to Battle Groups; Rotatable Pool Allowances; AVCAL Investment;

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

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20 DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	21 ABSTRACT SECURITY CLASSIFICATION Unclassified
22a NAME OF RESPONSIBLE INDIVIDUAL Dr. Shu S. Liao	22b TELEPHONE (Include Area Code) (408) 646-2505 · 22c OFFICE SYMBOL Code 54Lc

DD FORM 1473, 84 MAR — 83 APR edition may be used until exhausted. All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE

UNCLASSIFIED

#19 - ABSTRACT (CONTINUED)

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#18 - SUBJECT TERMS (CONTINUED)

Supply Support Effectiveness; Regression Analysis

Approved for public release; distribution is unlimited

A Study of Carrier Based Aircraft Readiness Sustainability in the Event of External Air Logistic Support Deprivation

by

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requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1987

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ABSTRACT

This thesis investigates the feasibility of constructing a quantitative model of the Navy's aircraft carrier aviation logistic support system. The emphasis is on predicting the effect that an interruption of COD/VOD material would have on the sustainability of aircraft readiness. Two forecasting models were constructed; one for forecasting full mission capable rates (FMC) and one for forecasting mission capable rates (MC). The conclusion was that aircraft readiness is very sensitive to a prolonged interruption in the external air logistic support pipeline. Recommendations are made to conduct specific carrier operations to extend the range of actual data observations.

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ACKNOWLEDGEMENT

I would like to thank my wife, Kathy, and son, Teddy, for their support and understanding during the preparation of this thesis.

I. INTRODUCTION

When an aircraft carrier commences a deployment, it takes with it a logistic support system designed to sustain operations for a finite period of time. Part of that logistic support system, one which has become an integral part of daily operations, is the arrival of material via carrier onboard delivery (COD) and/or vertical onboard delivery (VOD). This thesis defines such COD/VOD deliveries as part of the external logistic support system and attempts to measure the importance of this logistic support element in terms of aircraft readiness.

A. THE SCENARIO

A small country in Central America is believed to be on the brink of becoming the next major Soviet block stronghold in the western hemisphere. Prior U.S. involvement in this nation has consisted of providing money, material, and political support for a small counter-revolutionary movement. It is believed, however, that this small country will become inextricably aligned with the Soviets unless decisive action is taken.

Intelligence sources have confirmed the increasing presence of Soviet military equipment and advisors. Airfields capable of supporting the largest military aircraft are under construction. Air defense capability is

in place and being strengthened. Deep water sea ports on both the Caribbean and Pacific coasts have recently been visited by Soviet military ships and commercial vessels.

These issues, and the alternatives for dealing with them, have been hotly debated in closed sessions of both the US House and Senate. World opinion is badly divided over the eventual actions that the United States may take. In particular, the other countries in Central America have declared themselves neutral and are flatly refusing to allow the U.S. to fly military aircraft over or through their countries. They are also prohibiting the use of their harbors and territorial waters by U.S. warships.

The President has ordered a Navy Carrier Battle Group to steam south from west coast ports and take up station off the coast of this troubled Central American country. Their mission is to fly daily air reconnaissance flights and maintain maximum battle readiness.

The third world countries of Central America have essentially cut-off the customary logistic support pipeline for a battle force by precluding entry of U.S. aircraft into their national air space and closing their airfields and harbors to U.S. military planes and ships. The only means of resupplying the battle group is with ships from the mobile logistic support force (MLSF).

B. THE ISSUES

This fictitious scenario is the author's means of defining an environment within which questions can be posed and answers proposed. It limits the scope of the thesis and focuses the reader's attention on the issue under investigation: aircraft readiness sustainability in the event of deprivation of external air logistic support.

The data collected for this thesis shows that during seven major Pacific Fleet deployments the aircraft carrier air logistic support pipeline has remained connected to the ship for 73.5% of the days at sea. For every 7 days at sea there were, on the average, 5 days when cargo and/or mail reached the carrier via C-2, US-3A, S-3A or helicopter. The mean weight (cargo plus mail) of these shipments was 2,250 lbs. This high degree of connectivity to the external supply support system raises a number of questions:

1. Is aircraft readiness dependent on this level of air logistics support?
2. How sensitive are readiness levels to a change in the length of the air logistic pipeline (as measured by time)?
3. How long can high readiness levels be sustained when the logistic pipeline is completely cut?
4. Has the onboard logistic support system become so accustomed to almost daily material delivery that it has, through its data collection system, incorporated or internalized "artificially" short material delivery times, thus rendering aircraft availability more

sensitive than necessary to an interrruption in the logistic pipeline in the future?[1]

C. OVERVIEW

Chapter II is the author's conceptual model of the aircraft carrier logistic support system. A systems approach was taken to translate the organizational logistics elements (supply, organizational level maintenance, intermediate level maintenance, etc.) into a model influence diagram. Decision variables, performance measures, exogenous variables, constraints, policies and intermediate variables are identified and discussed.[2] The ideas presented in this chapter are the foundation of the analysis developed in chapters IV through VII.

Chapter III presents comments on previous reports and studies in the area of aircraft carrier logistic support.

A quantitative approach was used to address the thesis questions. Data measuring attributes of aircraft readiness, demand for logistic support, onboard supply support, and

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[1]This question refers to the formula for calculation of rotatable pool allowance quantities based on repair turn-around time (TAT). Under present policy, TAT is constrained to a maximum of 20 days. Awaiting parts (AWP) time is one of the times counted toward that total. AWP is also constrained to 20 days. Actual AWP times are used to calculate TAT. So, if off-ship AWP requisitions reach the carrier significantly faster in peacetime than during war, then the TAT's are being understated. Since the TAT is used in the computation of rotatable pool allowances, this leads to allowances which are understated.

[2]Bierman, Harold Jr., Bonini, Charles P., and Hausman, Warren H., Quantitative Analysis for Business Decisions, Irwin, 1986.

external supply support were collected from records maintained by the Commander, Naval Air Forces U.S. Pacific Fleet (CNAP). Data was obtained from seven major aircraft carrier deployments encompassing three years of operation. Chapter IV describes in detail the data elements collected.

The computer program called MINITAB was used to perform data analysis. The data was evaluated using multiple nonlinear regression, and Box Jenkins techniques. Chapter V outlines the a priori assumptions and expectations that underlie the analysis. Chapter VI details the actual steps taken in the analysis. And Chapter VII presents the results and interpretations.

Chapter VIII presents the author's conclusions, recommendations and areas for further study.

D. SUMMARY OF FINDINGS

1. Daily aircraft readiness, as measured by Full Mission Capable (FMC) and Mission Capable (MC) rates, can be quantitatively modeled as a function of:

    a. the level of demand placed upon the logistic support system through the tempo of aircraft flight operations

    b. the success of the onboard logistic support system in restoring failed aircraft systems, and

    c. the ability of the external logistic support system to:

        1) maintain the capacity of the onboard logistic support system, and

        2) redress specific failures of the onboard logistic support system.

The numerical models which support these findings are described in Chapter VI, Sections D and E.

2. The interpretation of the numerical models provides clear answers to the four thesis questions.

   a. Aircraft readiness is dependent on the frequent receipt of material via the air logistics pipeline.

   b. The FMC rate may decline at an estimated rate of .37 percentage points per day (e.g., 82% - .37% = 81.63%) for each day without the arrival of a COD/VOD. The MC rate is indirectly linked to COD/VOD arrival frequency. The MC rate will improve at an estimated rate of .2887 times the natural log of the weight of cargo delivered by the COD/VOD (e.g., if the current MC rate is 82% and a 10,000lb COD/VOD shipment arrives, the next day's MC rate should improve to 84.66%; 82% + .2887*ln10,000 lbs = 84.66%).

   c. If both the surface and air logistic pipeline are cut for a period of 45 days, FMC and MC might drop below 33%. Given that surface transportation will get through to the carrier, the effects on readiness will be primarily dependent upon the MLSF ship's transit time and the number of days backlog of high priority parts that accumulate piersided between MLSF ship departures. A more explicit answer to the above question would depend on additional assumptions about the scenario and the use of a stochastic simulation model. See Chapter VIII Section B.

   d. The AVCAL provisioning process uses actual external logistic support system response times in the determination of rotatable pool allowances. The extent to which the incorporation of peacetime transportation times for AWP requisitions will effect rotatable pool issue effectiveness and thus readiness is an excellent topic for another thesis. See Chapter VII Section C.

3. Chapter VIII contains additional discussion of the thesis questions as well as details about the recommendations outlined below.

   a. Battle group commanders and, to a lesser degree, ship's company personnel have control over some key variables in the FMC/MC forecasting models. The data presented in this thesis can be used to

quantitatively judge the effects that changes in these variables may have on readiness. The ability to quantify the tradeoffs between readiness and flying hours or readiness and keeping the US-3A flying may make it easier for commanders to estimate the effects of their decisions.

b. Carrier battle groups expend a tremendous amount of resources practicing battle tactics and evaluating weapon systems performance. A great deal of effort goes into making those exercises as real as possible so that the inferences from the collected data can be extrapolated into actual combat conditions. Certainly the logistics system is also tested during these exercises. However, the same kind of combat simulation and performance data collection has not been consciously applied to the aviation logistic support system.

During the 3 years of observed carrier deployments, the longest period a carrier had to operate without either a port call or a COD/VOD delivery was 12 days. The forecasting models strongly suggest that a break in the logistics pipeline will have a very significant negative effect on the sustainability of aircraft readiness levels.

Because there have been no instances when a carrier has had to operate without external aircraft logistic support, there are no hard data from which to draw conclusions. Therefore, the author recommends the following actions:

- Implement special logistics data collection procedures on a specific carrier.

- Conduct an exercise in which there is an actual 30-45 day denial of external aviation logistic support.

The results of such an exercise would be invaluable in identifying weaknesses of and improvements to carrier aircraft combat sustainability.

c. Other studies have attempted to create inventory models that measure performance in terms of aircraft readiness, as opposed to supply issue effectiveness. Supply performance measures such as AVCAL net and gross effectiveness are

calculated and reported monthly. Correlational analysis between measures of supply effectiveness and aircraft performance cannot be improved until the resolution (level of data aggregation) of supply data matches that of the readiness data. The AMRR reports aircraft material condition on a daily basis. The AV3M data collection system can track aircraft availability on an hourly basis. Without raising the spector of voluminous increases in supply data reporting requirements, it is suggested that the recently installed Shipboard Uniform Automated Data Processing System -Real Time (SUADPS-RT) and NALCOMIS Repairables Management Module (NRMM) have the capability to produce the data required to calculate supply issue effectiveness on a daily basis. The availability of daily issue effectiveness figures would allow analysts to construct a model to bridge the current gap between issue effectiveness and aircraft readiness.

d. The author manually gathered the data for this thesis from the pacific fleet air type commander where operational performance reports are retained for 3 years. Unless this type of information is presently archived in another location, it is recommended that longer term retention, on magnetic or optical storage mediums, be used. Ready access to historical data would improve both the opportunity for and quality of future quantitative analysis of logistic support issues.

4. There is practically an unlimited amount of discussion and "what if" analysis that could be done with the data collected for this thesis. Much of the analysis and interpretation performed in this thesis has been purely academic, but the author hopes that some of the ideas, facts, and recommendations contained herein will expand our understanding of carrier aviation logistic support.

II. LOGISTIC SUPPORT SYSTEM OVERVIEW

The thesis investigation requires an understanding of the overall carrier aircraft logistic support system. This chapter provides an overview of how this system works and highlights those areas that will be specifically analyzed. Logistic support is defined. The major components of the system are identified. The system as a whole is outlined. Interactions between components are described. And, a model influence diagram in constructed.

A. DEFINITION OF LOGISTIC SUPPORT

> Logistic support is viewed as the composite of all considerations necessary to assure the effective and economical support of a system throughout its programmed life cycle. . . . The major elements of logistic support are: . . . maintenance planning . . . supply support . . . test and support equipment . . . transportation and handling . . . personnel and training . . . facilities . . . data . . . (and) computer resources.[1]

The readiness and sustainability of a carrier based airwing is dependent upon each of the logistics elements being in place and functioning.

Each logistics element has a different time horizon over which it can be considered fixed. Facilities and computer resources, for example, will be fixed over time periods between overhauls and/or restricted availabilities. Supply

[1]Blanchard, Benjamin S., Logistics Engineering and Management, 3rd ed., Prentice-Hall, Inc., 1986, p. 11.

support, on the other hand, can vary in its capacity and performance from day to day depending on circumstances at the time the deployment starts, the demands placed upon it and subsequent opportunities for replenishment.

The question of how well any one logistics element is performing must be preceded by consideration of how well it was designed (funded) to perform. What is the standard against which the performance is to be measured? For the aircraft logistic support system, there are few measures that reflect the performance of the individual logistic support elements as set forth above. There is, however, one commonly used standard against which performance of the overall system is measured: aircraft readiness, expressed in terms of the percentage of aircraft fully mission capable (FMC) and mission capable (MC).

The FMC and MC readiness statistics of recent carrier deployments will be used in the thesis as the standard (dependent variable) against which the effects of changes in the logistic support system will be measured.

B. MAJOR COMPONENTS OF THE LOGISTIC SUPPORT SYSTEM

The logistic support system is divided into two parts: internal logistic support and external logistic support.

Internal logistic support includes all logistic elements which deploy with the carrier battle group. Internal logistic support is what the battle group commander can consider to be on hand and available for immediate use.

External logistic support is construed to be all logistic elements that are provided to the carrier battle group from time to time and having their origins at shore support facilities. External logistic support elements may be considered available to the battle group commander subject to several constraints: the time it takes to transport the services or material to the battle group's location; the availability and capability of transportation assets; the possibility of enemy interdiction; and ultimate availability of the services or material from the shore support facilities.

The sustainability of the battle group's mission will be a function of its internal logistic support capacity/performance and the effectiveness of the external logistic support system. It is the external system which must maintain internal capacity and redress specific failures of the internal logistic support system.

1. Carrier Aircraft Logistic Support System

We now focus our attention on aircraft logistic support aboard the carrier. The major components of the onboard logistic support system are: the organizational level maintenance divisions of the airwing (O-level); the ship's aircraft intermediate maintenance department (AIMD); and the ship's supply department.

There are a number of components to the external logistic support system. The major ones are: supply system

stock points; shore based aircraft intermediate and depot level repair facilities; aircraft functional wing commands; and transportation assets[2].

2. Logistics System Inputs, Outputs and Feedback Mechanisms

For the aircraft logistic support system, the inputs are: broken aircraft and/or broken aircraft subsystems; and resources in the form of people, test and support equipment, technical documentation, facilities, and supply support.

The outputs are: up aircraft, ready for issue (RFI) repairable components, and non-RFI component retrograde.[3]

There are many feedback mechanisms used to measure the performance of and control the logistic support system. The primary mechanism is the aviation 3M (Maintenance and Material Management) reporting system. The mechanism which probably receives the highest level of attention is the daily aircraft material readiness/air operations report. There are weekly aviation supply management reports and monthly shipboard uniform automated data processing system

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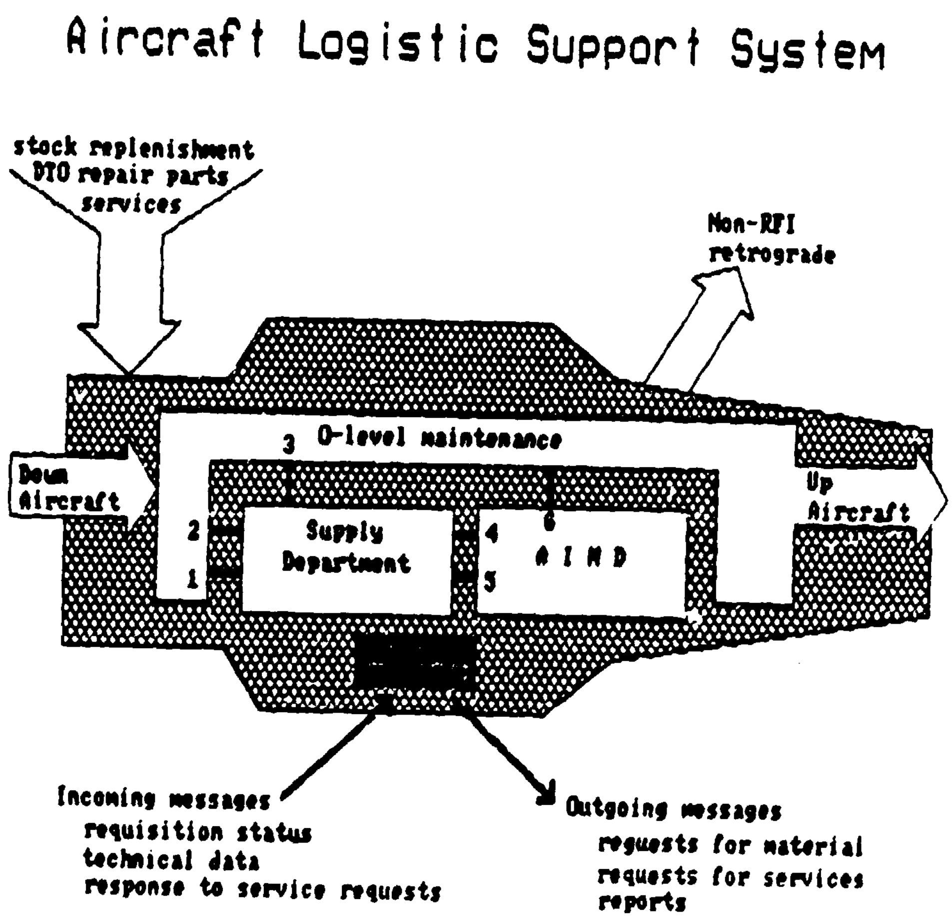
[2]The battle group will have both air and surface transportation assets assigned to it; MLSF ships, helicopters for vertical replenishment operations, S-3A aircraft with external cargo pods and C-2 cargo planes. These assets would probably only be used to pick up material which has been brought into the mission area by external transportation assets.

[3]The terms carcass and retrograde may sometimes be used interchangeably. A non-RFI repairable component may be called a carcass while in the I or D level repair cycle or retrograde if it is in the transportation system heading back to the wholesale supply system.

(SUADPS) reports. There are numerous operational level feedback mechanisms which are feeder reports to those listed above.

Figure 2-1 is a graphical representation of the overall aircraft logistic support system.



1. squadron orders material from supply
2. non-RFI carcass is turned in to supply
3. supply department issues material to squadron
4. supply sends non-RFI carcasses to AIMD
5. AIMD orders material from supply
6. AIMD provides direct support to squadron

Figure 2-1 Aircraft Logistic Support System

C. INTERNAL SYSTEM INTERACTIONS

The squadron maintenance, AIMD and supply departments interact at several levels. In essence, it is a complex synergistic organization which is wholly dependent on the successful performance of each individual element to achieve the overall objective of keeping aircraft in an up status.

Figure 2-1 shows, in simplified form, six of the interactions between departments. A brief discussion of each interaction follows:

1. The material control section of the O-level maintenance activity (squadron) passes a requisition for material, either consumable or repairable to the supply department.

2. If the requisition was for a repairable component, the O-level maintenance activity gives the non-RFI carcass to the supply department.

3. The supply department issues the requested material to the squadron. In the case where the material is not carried (NC) or not in stock (NIS) and/or it is a repairable assembly, there are a number of sub-procedures that the supply department must follow. However, the ultimate responsibility of the supply department is to provide the required part.

4. For those repairable components received as turn-ins from the O-level, the supply department sends the carcasses to the AIMD for repair. Carcasses repaired by AIMD are returned to the supply department where they are place in inventory to await the next demand.

5. While a repairable component is undergoing repair within AIMD a subassembly or non-repairable bit & piece part may be required to complete the maintenance action. In this case the AIMD requests this material from the supply department. It is the supply department's responsibility to provide the part or advise AIMD that the most efficient action may be to declare the component beyond their capability to repair due to the lack of parts.

6. There are a number of requirements for aircraft support that are handled directly between the AIMD and squadron maintenance divisions. They fall primarily into the area of test and support equipment (e.g. calibration and yellow gear) but may include assist actions such as non-destructive testing.

D. EXTERNAL SYSTEM INTERACTIONS

There are four interfaces between the onboard logistic support system and the external logistic support system shown in Figure 2-1.

1. Outgoing message traffic relating to aircraft logistic support can be grouped into three general categories: operational readiness reporting and requests for assistance; requisitions for consumable material not in stock (NIS) or not carried (NC) at the time it was requested or requisitions for repairable components that could not be repaired by AIMD; and stock replenishment requisitions and related follow-up actions. Although not directly within the scope of this thesis, it could be shown that a disruption or reduction in capacity of the communications system would also have a negative effect on the capacity and performance of the onboard logistic support system. A communications disruption would also hamper the external logistic support system's ability to provide the material and services required to sustain the onboard logistic support system.

2. Incoming message traffic provides information important to the maintenance and supply decision making process. Knowledge of the availability of parts and/or services and their expected delivery times from the external logistic support system is required to make optimal resource allocation decisions onboard.

3. The primary area under investigation in this thesis is the external logistics interface that actually puts the material on the deck of the carrier. How this interface effects aircraft readiness will be explored in depth.

4. For almost every repairable component that cannot be repaired onboard there will be a non-RFI carcass that must be sent off the carrier to be placed into the supply system depot level repair process. In the

scenario proposed in Chapter 1, an interruption of the transportation system would probably have a negligible effect on the performance of the wholesale supply system. However, in a larger global conflict, the efficiency with which non-RFI carcasses could be returned to the depot for repair and then return to supply stock points might prove to be a limiting path in sustainment of aircraft readiness during a protracted conflict.

E. MODELING THE LOGISTIC SUPPORT SYSTEM

The real world functioning of the aircraft carrier logistic support system is enormously complex. In order to address the thesis questions we must simplify and abstract from the empirical situation those factors most relevant to the problem. Factors or variables used to construct a model can be classified into five catagories; decision variables, exogenous variables, policies and constraints, intermediate variables and performance measures. Each of these catagories is explained.[4]

Decision variables are those aspects of the logistic support system that are under the control of the decision maker.[5] Examples of decision variables which will effect deployment readiness are:

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[4]Bierman, H. Jr., Bonini, C.P., and Hausman, W.H., Quantitative Analysis for Business Decisions, 7th ed., Irwin, 1986, pp. 6-21.

[5]The perspective of the reader certainly effects what is viewed as being under the control of a decision maker. For the purposes of the thesis, decision makers are considered to be at the carrier battle group commander level or above.

How many hours per day will aircraft fly?

What is the cargo routing for the battle group?

How frequently will logistic support aircraft (US or S-3A, C-2) pick up passengers, mail and cargo?

How will the MLSF ships be used to deliver supplies from the external logistic support system?

When and to what degree will off ship communications be limited?

Exogenous variables are those variables that are important to the logistic support system but are controlled by factors outside the purview of the decision makers. Examples of these are:

Congressional funding of the logistic support elements.

The political or military situation which dictated the geographical mission area of the battle group.

Availability of advance logistic support bases.

Hostile threats to transportation elements of the logistic support system.

Weather and sea state.

Policies and constraints represent limitations on the system which may be fixed over the time horizon of the model being constructed but are still within the control of decision makers over a longer period. For a deploying carrier these might be:

The number and mix of aircraft the carrier deploys with.

Inherent aircraft reliability and maintainability.

The spare parts allowances and percent of allowances filled.

Organizational and intermediate maintenance capability.

Funding levels for aircraft flight operations and maintenance.

Manning levels.

Personnel training and experience levels.

Intermediate variables express the direct and indirect interrelationships between the components of the logistic support system. They are a function of; the decision variables, exogenous variables, and policies and constraints; and the structure of the system. For example:

The number of demands for repair parts placed on the supply department is a function of the reliability and maintainability of the embarked aircraft and the number of hours that the aircraft are flown. The number of hours the aircraft are flown is a decision variable while the inherent reliability of the aircraft is a constraint. How this translates into an effect on overall aircraft readiness is dependent upon the entire onboard logistic support system's capacity and performance.

Performance measures are the attributes of the goals or objectives the decision makers are trying to achieve. In our case, the final measure of performance is aircraft readiness. There is however a complication. There is no common factor with which to measure each individual logistic support element's contribution to aircraft readiness. Instead there are measures such as; maintenance manhours, cannibalization rate, number of inductions, RFI rate, supply response time, AVCAL effectiveness, and etc.. So, what we really have is a number of intermediate level performance measures[6] which must be quantitatively analyzed and

[6]Intermediate performance measures are "proxies" for the underlying activity performed in each system component.

structured into a mathematical equation with which we can predict effects on readiness (the overall performance measure) caused by changes in the major components of the logistic support system.

F. THE MODEL INFLUENCE DIAGRAM

The intuitive understanding that aircraft readiness is a function of factors such as aircraft reliability, mission demand and logistic support needs no empirical proof. It is the objective of this thesis however, to develop a quantitative understanding of how those factors effect readiness. To assist in understanding the system and relationship of key variables, an influence diagram is shown in Figure 2-2.

The influence diagram is divided into three sections. At the top is the objective (the dependent variable and performance measure, aircraft readiness) measured in terms of MC and FMC rate. In the center are the sub-systems or constructs[7] which operate on the system inputs. Within each sub-system are listed some examples of intermediate level performance measures. At the bottom, are the decision variables, exogenous variables, policies and constraints which together constitute the inputs to the model (independent variables).

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[7]Euske, K. J., Management Control: Planning, Control, Measurement, and Evaluation, 1st ed., Addison-Wesley, 1984, p. 77.

The influence diagram suggests various relationships for which quantitative performance measures are available for statistical analysis. The numbered interactions between Supply, AIMD and O-level (1-6) are the same as those in figure 2-1, as are the interactions between the external and internal logistic support systems (l,m,n and o). Brief examples of the influences suggested by (a)-(k) of Figure 2-2 are listed below.

a) The number of aircraft onboard establishes the base over which flying hour requirements are spread. The flight schedule dictates the number of sorties and flight hours that must be performed by those aircraft. Aircraft reliability and maintainability drives the requirement for maintenance and spare parts.

b) The threat environment influences the types of aircraft flown, mission length, and demand for aircraft availability.

c) AVCAL provisioning establishes the supply department's capacity to fill requisitions.

d) The threat environment may influence the type and availability of logistic transportation assets that can be used to resupply the battle group.

e) frequency and type of COD/VOD delivery controls the volume and speed of material reaching the battle group.

f) Communications to and from the ship will influence the efficiency and effectiveness of the external logistic support system's responses to battle group requirements.

g) Cargo routing effects the volume and speed of material reaching the battle group.

h) Geographical mission area effects the availability of forward logistic support bases.

i) Port visits provide opportunities for large scale resupply.

j) Funding and manning levels effect every element of the entire system.

k) Geographical mission area may effect aircraft performance (mean time between failure) via hostile climatic influences as well as the ability of organizational level maintenance personnel to perform preventative and corrective maintenance.

An investigation of all the possible relationships using the full range of potentially available data is well beyond the scope of the thesis. Chapter IV describes the specific data elements collected and Chapter V outlines the specific hypotheses to be tested.

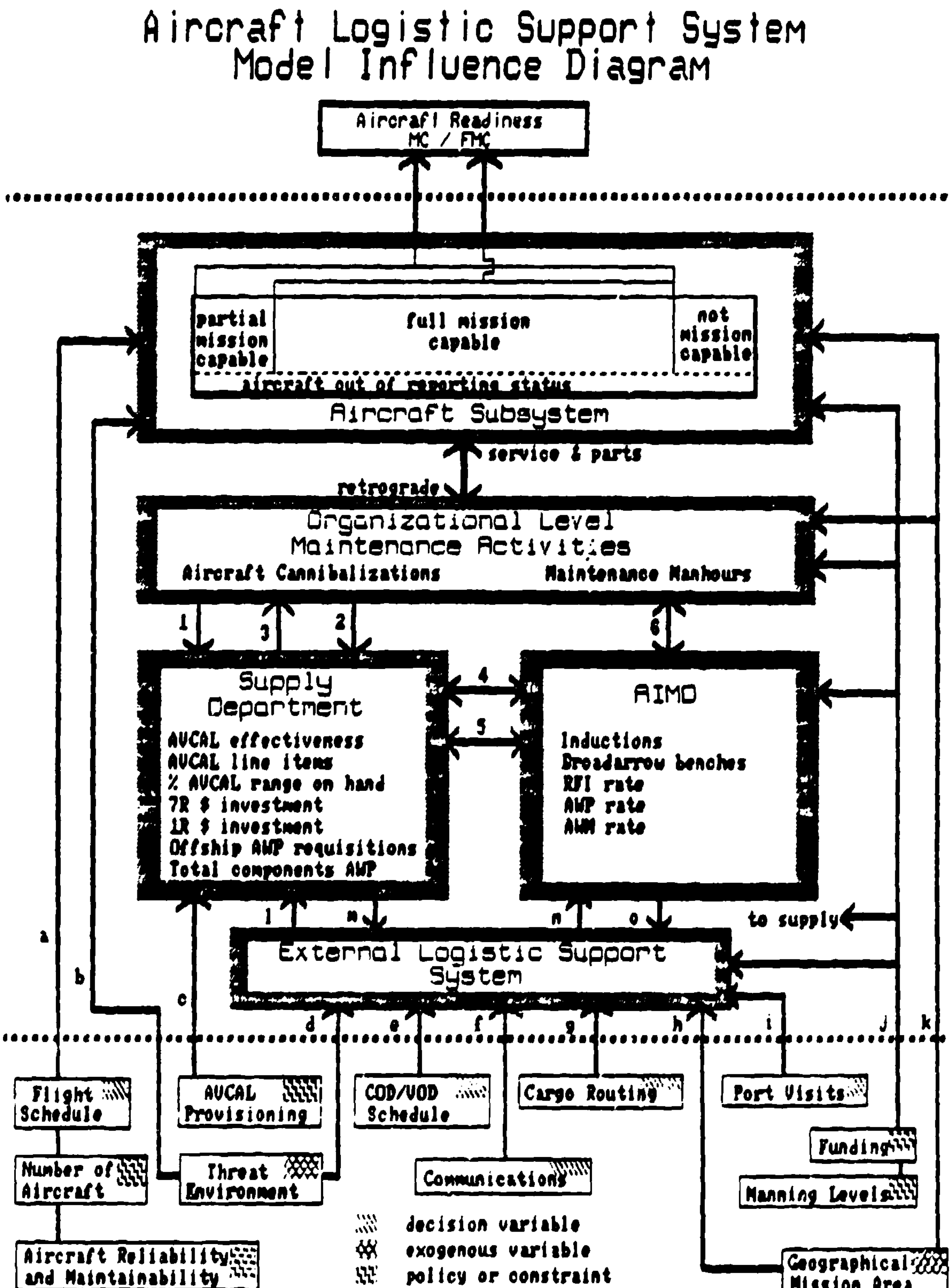

Figure 2-2 Aircraft Logistic Support System Model Influence Diagram

III. REVIEW OF PREVIOUS STUDIES

There is a tremendous volume of prior studies that deal directly or indirectly with the logistic support of aircraft carriers. A comprehensive review of these works is too lengthy for this thesis. This chapter describes several of the most recent research concerning the logistic support of aircraft carriers.

A. CLOSELY RELATED WORKS

No other studies where found that had constructed FMC and MC forecasting models based on selected measures of the overall aircraft logistic support system. There were, however, a number of studies with similar objectives.

S. Guion, in his October 1982 Master's Thesis, prepared at the Naval Postgraduate School (NPS), dealt specifically with the modeling of supply performance indicators to predict readiness. The results of this work lead, in part, to the creation of the data base at CNAP which provided the data for the present research. Guion's analysis and conclusions were limited by the quantity and types of data available to him.

K.M. Myette, also a student at NPS, wrote a quantitative thesis evaluating the advantages and disadvantages of aircraft cannibalization. His contention was that cannibalization is a viable, cost effective means of

improving aircraft readiness in the face of inefficiencies in supply support.

J.A. Bellflower, a student at the Naval War College, prepared a paper which addresses the importance of aviation spare parts availability on aircraft material readiness goals. The paper is qualitative in nature and emphasizes the relationship between budgeting and achieved readiness.

The Center for Naval Analyses has published two reports covering topics related to this thesis. Report 83-0845 examines the relationship between the mission capable rates reported in the Aircraft Material Readiness Report (AMRR) and the AV3M Sub-system Capability and Impact Report (SCIR). The conclusion of this report was that while the AMRR and SCIR report significantly different readiness rates, (SCIR being lower then AMRR) the reported readiness levels do somewhat parallel each other (and converge at higher readiness levels) and can thus be used with some confidence to judge the material condition of air wings.

CNA Report 1138--Vol. I, is an extensive quantitative study of the ability of various logistic aircraft to deliver personnel, mail and cargo, at least-cost, from shore to the carrier battle group. Data from this CNA report could be used to extend the interpretations and conclusions of this thesis. Cost information for COD/VOD services could be combined with the marginal product analysis in Chapter VII, Section B to arrive at a least cost combination of 7R

inventory investment and COD/VOD delivery frequency. The requirement to limit the scope of the thesis precluded exploration of this subject area.

The Center for Naval Analysis is expected to publish a related study by Dr. R.H. Nickel during the summer of 1987. This report will also examine issues involving COD/VOD support to carrier battle groups.

B. OTHER WORKS IN THE AREA OF AIRCRAFT LOGISTICS SUPPORT

Other research related to the thesis can be grouped into 4 general categories:

1. inventory models
2. comparison of inventory model performance
3. inventory financial controls
4. macro level logistic support issues.

There were three works found in the inventory model category. The Army Concepts Analysis Agency Report TP-84-12 studies the DYNA-METRIC (Dynamic Multi-Echelon Technique for Recoverable Item Control) computer model effectiveness in representing a theater army helicopter force in wartime for the purpose of analyzing fleet sustainability and parts requirements. The U.S. Air Force Operations Analysis Office study VECTOR: An Analytic Tool for Planning and Predicting Aircraft Spares Support is a simulation model designed to predict the number of aircraft down due to parts shortages. The RAND Corporation report 2785-AF describes the DYNA-METRIC mathematical model for relating aircraft spare-parts

supply levels and maintenance capability to aircraft readiness. The DYNA-METRIC model attempts to identify the effect of several types of support resources on aircraft mission readiness. This study discusses both steady state and time dependent modeling.

There were four studies which compared the performance measures of various inventory models: CNA report 1180, Aviation Parts Allowance Policy; RAND Corporation note 2210-Navy, Enhancing Integration and Responsiveness in Naval Aviation Logistics: Spares Stockage Issues; Fleet Material Support Office (FMSO) report 160, Multi-Echelon Models and M.D. Sullivan, Master's Thesis, An Analysis of Three AVCAL Inventory Models using the TIGER Simulation Model. The most extensive of these studies was the RAND note 2210. This study provides a good overall look at wholesale and retail provisioning problems with heavy emphasis on weapons system availability as the objective function in inventory level computations.

There was one study dealing with inventory financial controls. R.J. Gough's Master's Thesis entitled Management Control of Aviation Fleet Maintenance Funds in a Stock Fund Environment discusses the issues and impact of the transition of aviation depot level repairables to stock fund management.

There were eight studies which were generally related to aviation logistic support and/or took a very macro level

view of the system, they were: Chief of Naval Operations Report OR-001-04-83, Aviation Logistic Support Ship (TAV B); G.F. Kraus, The Battle Group Commander and His Staff: Issues Affecting Warfighting Effectiveness; T. Moore, Modeling Multiple Repairable Equipment and Logistic Systems; Logistic Management Institute, Toward the use of Availability Models for Spares Computations in the Department of Defense; RAND Corp., Carrier Based Air Logistics Study: Maintenance Analyses; RAND Corp., Carrier Based Air Logistics Study Data Sources and Issues; CNA, Relating Resources to Readiness; and D.R. Merrill, Naval Aviation IMA Repair Capability: A Readiness to Resources Approach. Of these studies, the shortest and most narrowly focused was the Chief of Naval Operations memorandum outlining the requirement for rapid deployment air intermediate maintenance activities in support of deployed Marine Air Groups. The study with the broadest scope was the Logistic Management Institute's study which, in less than 50 pages, attempted to describe the provisioning process of the Army, Navy, Air Force, and Defense Logistics Agency and how each service is progressing towards implementation of availability optimization inventory models. The most rigorous, quantitative study was the RAND Carrier Based Air Logistics Study. This study concentrated on aircraft intermediate maintenance manpower and test equipment required to support avionics subsystem repair.

C. COMMENTS

An important trend in the development of inventory models and the evaluation of these models is the attempt to measure performance using readiness rather than inventory fill rates. As mentioned in Chapter I, Section 3(d), the author feels that more frequent collection and reporting of issue effectiveness can contribute to better correlational analysis between readiness indicators and supply performance.

Of concern to the author was the macro view of the supply system and its relationship to aircraft readiness incorporated into many of the studies. These studies dwell heavily on wholesale level provisioning suggesting some kind of a "trickle-down" effect for improvement of readiness at the shipboard level. Taking a top-down approach to carrier aircraft readiness improvement makes the modeling and analysis process much more complex and may obfuscate some issues such as the underlying theoretical constructs of the carrier repair process or assumptions about repair capacity. An example of a bottom-up study aimed specifically at improving carrier AVCAL rotatable pool performance is a well documented study by M.L. Mitchell, NPS Master's Thesis, March 1983. Mitchell identified two deficiencies in existing models. Those deficiencies involved the method of using input data and assumptions of unlimited repair process capacity.

IV. THE DATA BASE

A. SOURCES AND USES OF DATA

The data used in the model was gathered from reports and records maintained by the Supply Section of the Commander, Naval Air Forces U.S. Pacific Fleet (CNAP) in San Diego, California. CNAP is the administrative command of all Navy air forces from the west coast of the United States westward to the east coast of Africa.

An explanation of common terms is required to understand the meaning of the data elements. In addition, abbreviation of the names of data descriptions was required to meet length limitations in the computer program used to analyze the data. These abbreviations will be identified in this chapter. Some data elements in the original data base were not used in the analysis process. However, all data collected is described in this chapter.

The data is divided into four catagories. These catagories are used throughout the thesis to group the data and organize the discussion. Measures of:

1) Demand for Logistic Support
2) Onboard Supply Support
3) External Supply Support
4) Aircraft Readiness.

A number of data elements are used within each category.

A data element may closely measure a desired attribute or it may be an approximation or proxy measure. Proxies are used when the attribute measured is too complex or the necessary data is not available.

Data was gathered from three sources:

1) Daily "Aircraft Material Readiness Report (AMRR)"
2) Weekly "Aviation Supply Management Report (AVSMR)"
3) Monthly "Financial Inventory Reports (FIR)."

Data was obtained from a total of seven major aircraft carrier deployments encompassing three years of operations. The names of the carriers have been replaced by an index number, 1-7, representing the five carriers whose deployments were documented. The specific dates associated with daily observations have been converted to a sequence of consecutive numbers, 1-1094. These steps were taken to preclude the requirement to classify the data during the analysis and drafting of the thesis. The total number of days observed was 1260. The difference between 1260 and 1094 is the number of days where there was more than one carrier deployed.

As each carrier approaches the end of its deployment, management's focus on readiness issues changes and the logistic support system begins its transition to a non-deployed status. For these reasons data observations for the final 6-8 days of each deployment were ignored.

B. EXPLANATION OF DATA ELEMENTS

This section explains the organization of the data base, each data element and how each element was manipulated[1] when it was entered into the computer.

1. Data Base Organization

The total data base matrix consists of 1260 rows and 32 columns for a total of 40,320 data entries. To provide better data base security, the data for each deployment was entered into an individual MINITAB file. Analysis was done using working files created by reading in the required data columns from each deployment file.

2. Data from the Aircraft Material Readiness Report

The AMRR[2] is a daily report sent from the carrier to approximately 12 operational and administrative commands advising those activities of the current aircraft material condition and identifying significant aircraft support deficiencies. There are a variety of rules that govern the reporting. The most significant one in this application is that the report is not required daily while in port. Thus while there may be flight operations conducted (from shore

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[1]The correct alignment of the reported data with the point in time it was actually collected onboard the ship or the time the reported activity took place is critical to accurate analysis. An explanation as to how and why data was manipulated will be included with the discussion of each data element.

[2]Commander Naval Air Force, United States Pacific Fleet Instruction 5442.5A Aircraft Material Readiness/Air Operations Reporting, 2 May 1984.

airfields) results of such activity will only be reported weekly or upon the first day at sea.

MC (Mission Capable) is a percentage calculated by dividing the total number of MC aircraft onboard by the number aircraft in a reportable status. (It is possible to have aircraft onboard which, for a number of reasons, are not counted against readiness levels.) A MC aircraft is one which is capable of performing some but not all of its normal missions. MC represents aircraft readiness at the start of the flying day. The start of the flying day is the same day the AMRR is prepared. Therefore, MC was entered into the computer data base as occurring on the same date as the AMRR.

FMC (Full Mission Capable) is a percentage calculated by dividing the total number of FMC aircraft by the number of aircraft in a reportable status. An FMC aircraft is one which is capable of performing all of its designated missions. FMC was entered into the data base on the same date as the AMRR.

Flying Hours is the total of day and night hours flown by aircraft onboard the carrier and those temporarily ashore (those operating at a shore airfield while the carrier is in port). Flying hours represent an activity that occurred the day prior to the AMRR preparation. Therefore, this data was entered into the computer on the date before the AMRR.

FMC Sorties is the total number of sorties launched using aircraft which were FMC at time of launch. In retrospect, the data for total sorties flown should have also been obtained. FMC sorties should still be an adequate measure of aircraft usage levels in conjunction with flying hours. Sorties were entered on the day prior for the same reason as flying hours.

A Condition Aircraft is the number of aircraft that are in "A/B" readiness reportable status. An aircraft may be in a status other than "A" or "B" for several reasons. For example if the aircraft sustains damage that requires depot level repair, the aircraft will be placed in an out of reporting status until it can be off-loaded or until depot maintenance is performed onboard by visiting depot repair personnel. This is the number of aircraft in a reportable status as of the date of the AMRR. Therefore, this data was entered on the same date as the AMRR.

Date last COD/VOD is the date that the last receipt of cargo and/or mail was received onboard by carrier onboard delivery aircraft (fixed wing) or vertical onboard delivery (helicopter). The AMRR reports mail and cargo received the previous day. Thus, this data was entered on the date prior to the AMRR date. A "0" was entered to represent the occurrence of a COD/VOD delivery. A "1,2,3,..." was entered to represent the number of elapsed days since the last COD/VOD.

Aircraft Cannibalization, as reported on the AMRR, represents the cumulative number of cannibalization removals during the current month. However, this was converted to a number of actions per day by taking the difference between each day's reported cumulative actions. Although these removal actions may have taken place during the previous day they directly affected the readiness levels reported on the AMRR and will therefore be entered on the same date as the AMRR.

NMCS/PMCS requirements AWP represents the number of on-ship NMCS and PMCS requisitions for repairable equipment that is in the AIMD repair cycle with a status of awaiting parts. Not all carriers reported this data element consistently. Some reported individual figures for both NMCS and PMCS while others reported a combined total. For this reason the combined total will be used. This data is gathered on the same day as the AMRR so it will be entered on the same date.

Inport Periods identifies when the carrier is inport during the deployment. A distinction between port calls at locations supported by U.S. military bases and strictly "liberty" ports will be made. The differentiation is required to more appropriately weight the logistic resupply activity while in port. A data entry of "0" will indicate a day at sea, "1" will represent a day in a "working" port, and "2" a day in a "liberty" port. The AMRR specifies what

days were inport and which were at sea. The data was entered in the data base accordingly.

<u>Cargo receipts p/w/c</u> identifies the number of pieces, weight, and cubic volume of cargo (other than U.S. mail) received onboard by COD or VOD. As a practical matter these figures should be regarded as estimates of the actual values. Both cargo and mail p/w/c represent the material received onboard the previous day. This data was entered on the date prior to the AMRR. Because of the volume of data represented by p/w/c only the weight was input into the data base. This should be a sufficient proxy for the size and effectiveness of the pipeline. Data for material received while inport is not readily obtainable.

<u>Mail receipts p/w/c</u> identifies the number of pieces, weight, and cubic volume of U.S. mail received onboard via COD or VOD. The piece count represents an estimated count of mail bags and individual loose boxes. The weight and cube figures are also estimates. It is important to note that a significant percentage of requisitioned material is shipped through the U.S. mail. Material moving in the cargo category typically has a large cube or is material which must be shipped via traceable means (individually manifested through the transportation system). This data was entered on the date prior to the AMRR date.

3. Data from the Financial Inventory Reports

The FIR (Financial Inventory Report)[3,4] is one of several automated reports generated by the SUADPS (Shipboard Uniform Automated Data Processing System) each month and mailed to CNAP. The FIR reports the dollar value of inventory held onboard at the end of the month by cognizance symbol. It provides the opening inventory, receipts, expenditures and closing balance. Investment levels for 9 Cog inventory were not documented because of time constraints on data collection. The following data should provide a sufficient representation of inventory investment levels for the thesis analysis.

7R(2R) Cog Opening Inventory Investment represents the financial investment tied up in repairable aviation components as of the beginning of the month. The Navy shifted from APA to NSA funding of aviation depot level repairables in April of 1985. The MINITAB data base will be named "7RInvst". The reader can assume that dollar figures for time periods prior to April 1985 reflect the 2R Cog inventory balances. All values in the data base for both 7R and 1R are in thousands of dollars.

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[3]Naval Supply Systems Command Publication 519, SUADPS Operations Manual.

[4]Commander Naval Air Force United States Pacific Fleet Instruction 4440.14C, Afloat Inventory Management, 30 April 1985.

1R Cog Opening Inventory Investment represents the financial investment tied up in non-repairable aviation specific parts as of the beginning of the month.

Price Inflator--Because the inventory values were reported in nominal dollars a price inflator factor was obtained from the Naval Supply Systems Command Headquarters. The price inflator was used to convert the nominal dollar values from a given year to constant dollars for use in the data analysis.

Base: Fiscal Year 1987

nominal year	1986	1985	1984	1983
inflator	1.0	1.0372	1.0752	1.1141

Both the 7R and 1R investment levels are reported only once per month. For the purposes of analysis it was assumed that the opening inventory level would be a constant over the entire month (in reality this was not the case). Therefore, the opening inventory balance was duplicated and entered into the data base as the daily investment level.

4. Data from the Aviation Supply Management Report

The AVSMR[5] is a weekly report sent to CNAP from the carrier's supply department. The purpose of the report is to identify areas where CNAP assistance is required, and

[5]Commander Naval Air Force United States Pacific Fleet Instruction 4423.8A, Operations Manual for Supply Support of Aircraft Systems, 12 December 1983.

provide information for the construction and maintenance of a Pacific Fleet Aviation Logistics Support Data Base.

The AVSMR contains a myriad of data elements. The majority of the data has been aggregated into weekly averages or totals from daily work sheets which are not available at CNAP. There are several data elements that are reported only monthly. Those represent aggregated monthly averages or totals. The following data elements were selected for use in this thesis.

Rotatable Pool components AWP is the number of Pool components, either WRAs or SRAs, which were in the AIMD repair cycle awaiting parts at the end of the week. This data element was entered into the data base on the ending date of the week.

Total components AWP is the total number of components, either Pool or Non-Pool, that were in the AIMD repair cycle awaiting parts at the end of the week. This data element was entered into the data base on the ending date of the week.

Off-ship AWP requisitions is the total number of requisitions outstanding at the end of the week. If an item is required for the repair of a component being repaired by AIMD, and the item is not in stock (NIS) or not carried (NC) onboard, then a requisition is passed off-ship into the supply system. This data was entered into the data base on last date of the week.

Broad-arrow Benches refers to the number of specific work benches (avionics, electronic, or hydraulic test equipment) which are not functioning. This is a significant statistic in that one bench frequently supports intermediate level repair on several repairable components for one or more types of aircraft. The loss of one important bench can mean the loss of all repair capability for several critical aircraft components. In as much as critical component supply inventory allowances are computed, in part, using expected AIMD repair turnaround times, loss of repair capability or significant increases in turnaround times will guarantee a degradation of aircraft readiness. This data was entered on the ending date of the week.

AVCAL demands is the monthly total of non-pool requisitions received for AVCAL material, that is, all aviation support related requisitions received by the supply department which were not for an item carried in the rotatable pool. The total monthly figure was divided by the number of days in the reporting period yielding the average requisitions per day. The daily average demand was entered into the data base.

Pool demands is the monthly total of requisitions received for items carried in the rotatable pool. The average daily demands were calculated and entered into the data base.

AVCAL Net Effectiveness is the aggregate monthly fill rate of requisitions for material carried (number of AVCAL issues divided by the number of requisitions for carried AVCAL inventory). It was assumed that the effectiveness reported at the end of the month was the average daily effectiveness. Thus the AVCAL Net Effectiveness data were duplicated and entered as a daily figure.

AVCAL Gross Effectiveness is the aggregate monthly fill rate for all AVCAL requisitions (number of AVCAL issues divided by the total number of requisitions). This data element was entered into the data base as a daily figure like net effectiveness. A distinction is made between aviation and ship support requirements with statistics calculated and reported separately.

AVCAL line items is the number of line items (inventory range) carried in the ship's inventory for aviation support as of the end of the month. The figures will vary from month to month based on automated demand based stocking programs and manually computed allowance changes. It was assumed that this was a snap-shot figure and the data was entered into the data base once as of the ending date of the report period.

Percent Range on-hand is an end of the month snap-shot of the percentage of inventory line items with a

quantity on-hand. Entered into the data base on the ending date of the report period.

Percent Line items with on-hand balance greater than or equal to Reorder Level (RO) an end of the month snap-shot of the percentage of inventory line items whose on-hand balance is equal to or greater than their reorder level. Entered into the data base on the ending date of the report period.

Number Inductions into AIMD is the monthly total of repairable components inducted into the AIMD repair cycle. This data element was divided by the number of days in the reporting period to yield an average daily induction figure. The daily figure was entered into the data base.

RFI rate represents the percentage of those monthly inductions which were successfully repaired by AIMD. The RFI, AWP, and AWM rates were each assumed to represent the average daily rate. Each figure was duplicated and entered into the data base as a daily data element.

AWP rate represents the percentage of monthly inductions which went "hard AWP". If a piece part required by AIMD to repair a component is not immediately available onboard, the component and the list of required parts is forwarded to the AWP unit of supply. The AWP unit will then attempt to locate the part on board or pass a requisition off ship. Only those components being turned over to the AWP unit are counted towards the "hard" AWP rate. This

procedure reduces tremendously the amount of paperwork and computer data entry time required for the AIMD and Supply Department.

AWM rate represents the percentage of monthly inductions which could not be immediately placed "in work" and were therefore placed in an "awaiting maintenance" category.

C. THE DATA ELEMENTS

The following tables list each data element collected, the MINITAB nomenclature, card column and the category, 1-4, which the element is expected to measure.[6]

DATA SOURCE FIR

Data Element	MINITAB Name/Column	Measurement Category
7R(2R) Cog Opening Inventory Investment	7RInvst C3	2
1R Cog Opening Inventory Investment	1RInvt C4	2

MINITAB card column C1 contains the carrier deployment indicator. Card column C2 contains the date index.

[6]From page 36, the measurement catagories are: 1) demand for logistic support, 2) onboard supply support, 3) external supply support and 4) aircraft readiness.

DATA SOURCE AMRR

Data Element	MINITAB Name/Column		Measurement Category
MC rate	MC	C20	4
FMC rate	FMC	C21	4
Flying Hours	FlyHours	C23	1
FMC Sorties	FMCSort	C24	1
# A Condition Aircraft	#ACond	C25	1
Date last COD/VOD	COD/VOD	C26	3
Aircraft Cannibalization	CANNIB	C27	2
# NMCS/PMCS requirements AWP	N/PAWP	C28	2
Inport Periods	Inport	C29	3
Cargo receipts p/w/c	Cargo	C30	3
Mail receipts p/w/c	Mail	C31	3
Total weight	Tweight	C32	3
Days since last Port	Portdays	C33	3

DATA SOURCE AVSMR

Data Element	MINITAB Name/Column		Measurement Category
Rotatable Pool components AWP	PoolAWP	C5	2
Total components AWP	TotalAWP	C6	2
Offship AWP requisitions	AWPRqns	C7	2/3
Broadarrow Benches	BrdwBchs	C8	2
AVCAL demands	AVCALDmd	C9	1
Pool demands	PoolDmd	C10	1
AVCAL Net effectiveness	AVCALNet	C11	2
AVCAL Gross effectiveness	AVCALGRS	C12	2
AVCAL line items	AVCALine	C13	2
% Range on-hand	Range%	C14	2
% Line items with on-hand balance >= RO	RO%	C15	2
# Inductions into AIMD	Inducts	C16	1
RFI rate	RFI rate	C17	**
AWP rate	AWP rate	C18	**
AWM rate	AWM rate	C19	**

** These data elements were not collected specifically for the thesis model and therefore do not fall into one of the four categories of measures.

D. DATA EXCLUDED

Of the many measures included in discussions about readiness and onboard logistic support, the number of NMCS and PMCS requisitions offship is normally given considerable weight. However, the author feels that this statistic is an inadequate measure of the overall onboard logistic support system's performance. It is, rather, a measure of success/failure in correcting readiness degradation after it has occurred.

For a NMCS/PMCS requisition to be passed offship two subsystems of the onboard logistic support system must not have performed as desired and in some cases the external logistic support system must also not have performed well (in the case of a repairable component).

First, the supply subsystem must have failed by being not in stock (NIS) at the time the demand occurred. Or, the required material may have been not carried at the time of demand. In the second case a failure of a much larger process has occurred. Whether or not a part is carried depends upon the initial engineering assessments of component failure rates (reliability), the time required to perform maintenance (maintainability) and the designed operational availability (A_o)[7]. It also depends on

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[7] A_o = mean time between maintenance/mean time between maintenance plus mean maintenance down time. Ref: Blanchard, B. S., Logistics Engineering and Management, 3rd ed., Prentice-Hall, Inc., 1986, p. 65.

historical failure data, funding, and the outcome of face to face allowance negotiations between the ship and the inventory control point.

Second, AIMD must have failed to repair the component (EXREP).

And thirdly (if AIMD needed a part which was again NIS/NC in Supply) the external logistic support system must have failed to fill the required offship AWP requisition within the required time frame[8]. The component would then be classified as beyond the capability of maintenance (BCM 4) for the lack of parts.

There is no requirement for mathematical modeling in order to show that the faster offship NMCS/PMCS requisitions are delivered to the ship, the higher readiness will become. It is the realization that with an umbilical cord almost continuously attached to the ship, the incremental (marginal) increases or decreases in reported readiness reflect the effectiveness of the external logistic support system and not the underlying onboard system. But, it is the onboard system alone that will be the only source of support during periods when the logistics pipeline is cut.

[8]CNAP provides policy guidance on how long this time should be.

V. A PRIORI ASSUMPTIONS AND EXPECTATIONS

This chapter describes the framework from which data analysis was conducted. While defining the initial direction of the thesis, assumptions were made about how a model would be constructed, what data elements would be included and how those data elements were expected to interrelate. The selection of the data to be collected was based on these a priori assumptions and expectations.

A. THE PRIMARY ASSUMPTION

Prior to the commencement of the forecasting model construction there must be some conceptual equation from which to proceed. The functional relationship that the author set out to quantify was that readiness is a function of:

1. The level of demand placed upon the logistic support system through the tempo of aircraft flight operations
2. The success of the onboard logistic support system in restoring failed aircraft systems
3. The ability of the external logistic support system to:
    a) maintain the capacity of the onboard logistic support system and
    b) redress specific failures of the onboard logistic support system
4. Inherent aircraft reliability and maintainability.

B. THE MODEL

The qualitative description of the relationships outlined in Section A is presented below in the form of a mathematical equation. Each element of the equation is described in detail in this section.

$$R = f(D,O,E,A)$$

where:

R = readiness
D = the level of demand
O = onboard logistic support
E = external logistic support
A = aircraft reliability/maintainability.

1. Readiness (R)--The Dependent Variable

The objective of the thesis is to construct a model with which to predict the value of readiness given changes in demands on, and quality of, the onboard logistic support system.

Mission capable (MC), and full mission capable (FMC) are the data elements which will be used to represent aircraft readiness.

FMC is expected to be the more sensitive of the two indicators because it is an incremental measure. It expresses the number of aircraft that are both MC and FMC[1]. MC could represent more of the underlying logistic support quality while FMC measures the marginal/incremental efforts of the system.

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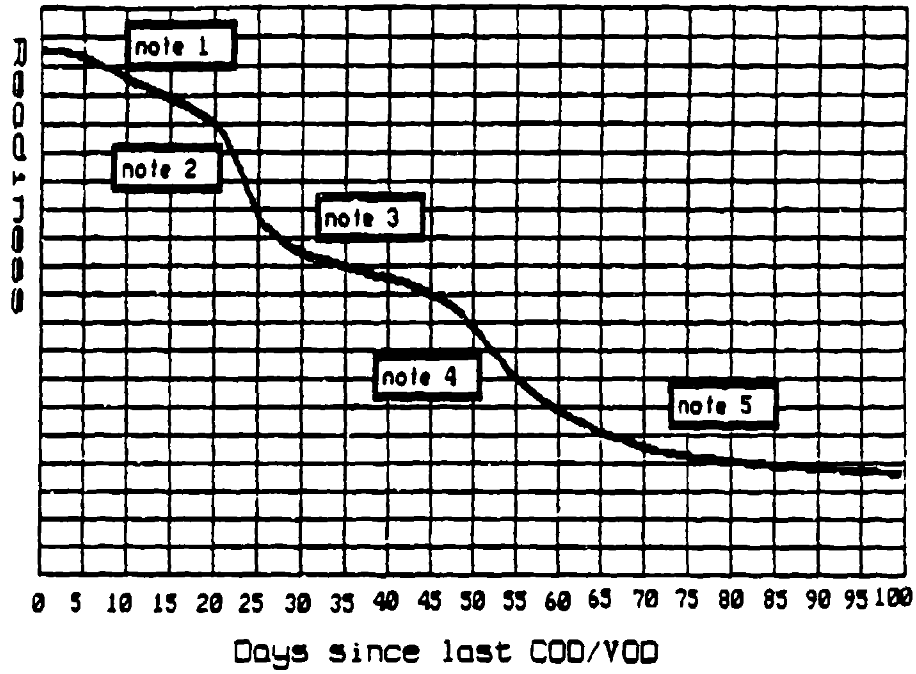
[1]It is possible to have 0% FMC while maintaining 100% MC. While this is unlikely, it does mean that every aircraft could be missing one of its mission subsystems.

The primary questions of the thesis revolve around the theoretical decay pattern of readiness in the event of an extended interruption in the logistic pipeline. Figure 5-1 shows the author's subjective estimation of that decay pattern. The inserts within the graph suggest possible explanations for the shape of the decay pattern.

There were no observations, in the three years of data, when a carrier operated for more than 12 days without a port call or COD/VOD delivery. For this reason, forecasts of readiness outside the relevant range must be interpreted with caution. The prediction interval for readiness from the regression equation is described in Chapter VII.

It should be emphasized that actual observations in the data base will not statistically allow the extension of such a pattern out to 100 days. And, it is unrealistic to assume that MLSF resupply would not reach a battle group within ten to fourteen days. However, neither has a carrier had to operate for more than 12 days without either a port call or a COD/VOD delivery. So, as will be discussed later, no data in the range of 15-30 days is available to confirm or deny the postulated effects that an AWP requisition backlog (note 2 below) may have on pool availability and thus aircraft readiness.

Readiness Behavior



Notes:

1. The first cause of readiness degradation will be the loss of off-ship NMCS/PMCS requisition receipt flow. A secondary effect will be the commencement of a buildup in repairable components awaiting parts (AWP) and a corresponding increase in off-ship AWP requisitions.

2. As a result of the backlogs in AWP, rotatable pool balances will begin to go to zero. As more pool line items become NIS the readiness levels will drop quickly.

3. Counteracting the effects of the pool inventory decline will be the aggressive cannibalization actions on both aircraft and components in the AIMD repair cycle.

4. The impaired capacity of the system to manage in this now crisis environment may result in decline of overall productivity.

5. Exhaustion of AVCAL inventory levels will keep the readiness levels moving downward.

Figure 5-1 Readiness Behavior

Mathematically, Figure 5-1 can be modeled using a cubic polynomial equation[2].

$$R = a - b_1X - b_2X^2 + b_3X^3$$

where:

R = readiness

a = readiness at time 0 (y intercept)

x = days since last COD/VOD and Port call

b_i = coefficient of partial regression.

Assuming initial values for FMC of 81% at time 0 and 51% at time 100, thirty points made up from the graph in Figure 5-1 were regressed by MINITAB using the above equation with the following results:

$$\begin{array}{rcccc} R = & 82.4 & - .394X & - .00262X^2 & + .000035X^3 \\ \text{t-ratios} & 89.8 & -5.0 & -1.4 & 2.77 \end{array}$$

R^2(adj) = 98.1%   Note: b_2 is not statistically significant

Figure 5-2 shows the original pattern from Figure 5-1 plotted with the calculated R from the regression output. From this comparison the reader can judge what the best possible regression plot using the actual collected data might look like.

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[2]A polynomial function can be used to express a curve which increases or decreases up to a certain point and then reverses the trend. [Prof. Shu S. Liao, draft text, Analytical Techniques for Financial Management] A cubic equation allows that change of direction to take place twice as is the case in Figure 5-1.

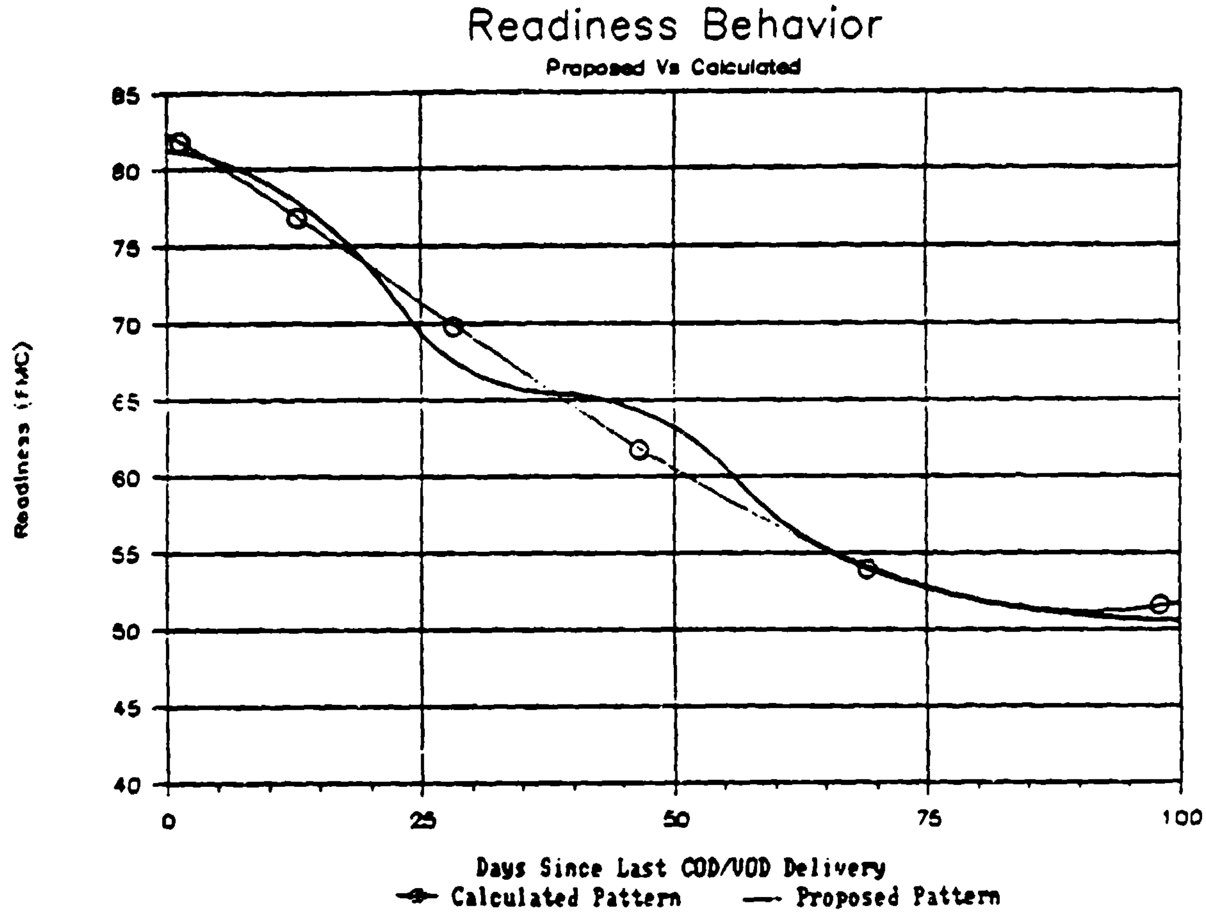

Figure 5-2 Readiness Behavior

2. <u>The Level of Demand (D)</u>

Six types of data were collected as candidate independent variables: flying hours, sorties, number of "A" condition aircraft, AVCAL demands, pool demands, and inductions into AIMD. After more consideration of the

relationships between these elements it was decided that AVCAL demands, pool demands and inductions were an output of aircraft reliability and maintainability. Therefore, those three elements where not used in the analysis process. Figure 5-3 depicts the envisioned relationships.

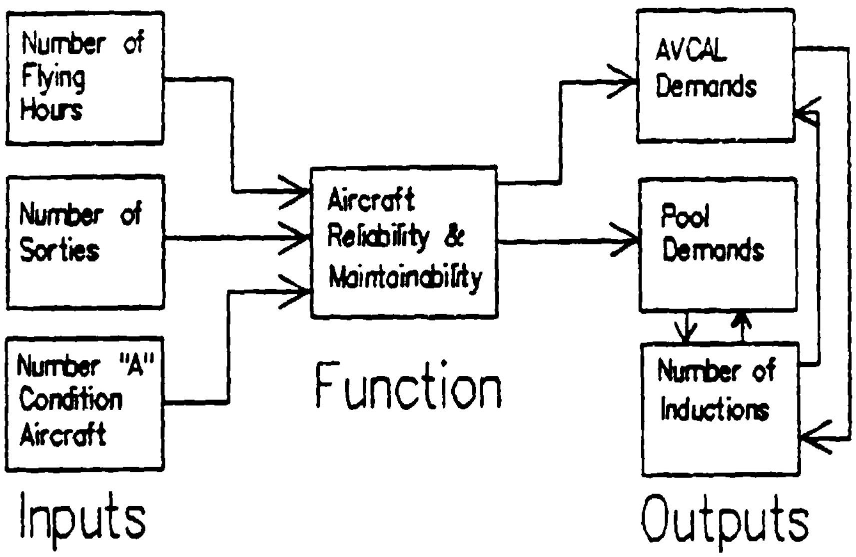

Figure 5-3 Input/Output Model of Aircraft Reliability and Maintainability

a. Flying hours

Readiness is expected to decline as the total number of flying hours increases. As an aircraft is used more, the number of required maintenance actions and component failures will increase as a function of the aircraft's inherent reliability and maintainability. Secondly, during days of heavy flight operations, opportunities to perform scheduled and unscheduled

maintenance are limited by the demand for aircraft to fly and deck spots to work on the aircraft. Counteracting this downward force is the capacity of the onboard logistic support system to maintain and repair the aircraft.

A single day of heavy flight operations may not result in a decline in readiness the following day. Several days of sustained heavy flight operations will probably result in a decline in readiness in the future. Thus, readiness trends may lag actual flying hours. The data base was analyzed to select the best lag factor for the model.

Composite variables such as flying hours per sortie, flying hours per A condition aircraft and sorties per A condition aircraft were tested during model development. The only such composite to survive was the number of flying hours per "A" condition aircraft. All the others dropped out as statistically insignificant or too redundant (multicollinearity).

b. Number of Sorties

The number of sorties may increase the probability that an aircraft system or subsystem will fail. Some systems may not be used or stressed as a function of flying hours alone. The sortie rate is expected to be a leading indicator of readiness. A negative coefficient of regression is expected.

c. Number of "A" Condition Aircraft

The number of aircraft is the base over which the demand for flying hours and sorties is spread. It also represents the total number of weapons systems for which logistic support capacity must be maintained. The more aircraft which must be maintained and supported the higher the potential demand on the logistic support system.

3. Onboard Logistic Support (O)

This was the most difficult measure to quantify. Thirteen data elements were collected as candidate explanatory variables (see tables in Chapter 4). Eight were chosen for inclusion in the initial regression analysis: 7R cog inventory investment, 1R cog inventory investment, aircraft cannibalization, broadarrow benches, AVCAL gross effectiveness, AVCAL line items, percent AVCAL range on-hand, and percent of line items with on-hand balances greater than or equal to their reorder point.

A complicating factor here is that both readiness levels and the capacity for onboard logistic support are affected simultaneously by the effectiveness of the external logistic support system through the COD/VOD receipt and port call frequencies.

Some of the data elements are statistically dependent on each other. These dependent relationships will introduce some multicollinearity into the regression calculations.

a. Aircraft Cannibalization

The aircraft cannibalization rate may be considered a function of both the squadron's maintenance philosophy and their perception of supply availability and response time. For the purposes of the thesis it is assumed that aircraft cannibalization represents a measure of the quality of supply support.

Cannibalization actions are taken to improve aircraft availability. However, the frequent removal and replacement of RFI components may increase the probability of their failure; therefore, excessive use of cannibalization actions may actually decrease readiness.

A negative coefficient of regression is expected.

b. Broadarrow Benches

The number of major test benches in AIMD that are broken was used as one measure of the logistic support system capacity. Presumably, the less repair capability available, the higher the likelihood that readiness will be degraded through the reduced availability of replacement components.

A negative coefficient of regression is expected.

c. AVCAL Gross Effectiveness

Gross effectiveness was used in favor of net effectiveness as it is a better measure of the ability to

provide support from onboard assets. Rotatable pool effectiveness was not used because it depends heavily on the AVCAL, AIMD and off-ship AWP requisition receipt flow.

d. AVCAL Line Items

The broader the range of repair parts carried onboard the higher the probability that a requested part will be carried. This is expected to have a high degree of correlation with gross effectiveness. A positive coefficient of regression is expected.

e. Percent of Range on Hand

If the item is carried, it must also be onhand for issue when the demand is received. The percentage of range onhand is a measure of the counteracting effects of consumption and resupply activity. The days since last COD/VOD and/or port visit will have a negative effect on this measure.

A positive coefficient of regression is expected.

f. Percent of Line Items with On-hand Balances Equal to or Greater Than Their Reorder Point.

This is a measure of the capacity utilization of the AVCAL and the success of resupply activities. A low percentage indicates that inventory levels are being consumed without corresponding resupply. The lower the percentage the more likely a stock out will occur.

A positive coefficient of regression is expected.

g. 7R and 1R Cog Inventory Investment

In addition to knowing the number of line items stocked, it is equally important to explore the cost of carrying the material in the inventory. A constant dollar investment level was used in the analysis (see Chapter IV, Section B.3).

A positive coefficient of regression is expected.

4. <u>External Logistic Support (E)</u>

External logistic support is construed to be:

a) issue of material from any ashore supply activity to fill a direct turnover (DTO) requisition

b) issue of material from any ashore supply activity to fill a stock replenishment requisition

c) technical publications and/or guidance required to affect repair of an aircraft

d) test and support equipment additions/replacements

e) replacement personnel and/or specially trained repair personnel

f) the transportation and delivery of items (a)-(e) to the ship.

There are many measures of external logistic support that could be constructed. We tried to quantify external logistic support effectiveness by answering two broad questions. How frequently was the pipeline connected to the ship? And, what was the capacity or flow of material that actually occurred while the pipeline was connected? Four data elements where collected to answer these questions;

inport periods, cargo receipts, mail receipts and days since last COD/VOD.

a. Inport Periods

The quantity of material received during a port visit was not available. It is possible to generalize and say that the quantity of material received in a "liberty" port will be significantly less than that received in a "working" port. It is assumed that more transportation priority one (TP1) cargo and first class mail (which will contain parts requisitions) will reach the ship while in a liberty port than will general cargo and stock replenishment.

Readiness is expected to show significant improvements following any port call while supply support indicators, such as AVCAL gross effectiveness, are not expected to be improved after a liberty port call[3]. For this reason, a variable was constructed to measure days since the last working port. A liberty port call will be considered as a day with a COD/VOD delivery. This arrangement is designed to separate the short term effects of DTO requisition receipts and the long term maintenance of support capacity which is provided by large quantities of stock replenishment requisitions.

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[3]It is not typical for a large volume of TP2 and 3 cargo to be routed to a ship while in a liberty port. Thus there would not be significant receipt of stock replenishment material.

b. Cargo and Mail Receipts

The total weight of mail and cargo received per COD/VOD delivery addresses the question of pipeline capacity. It is expected to have a positive coefficient of regression.

During the data collection process it was observed that mail and cargo receipt information was inconsistently reported between carriers. Some carriers did not report cargo receipts. Sometimes the same piece/-weight/cube was reported for two or three consecutive days.

When very large weights were reported, it was assumed that they were replenishments from a MLSF ship which had picked up consolidated air and/or surface shipments from an advance logistics port (such as Diego Garcia, located in the Indian Ocean) and ferried the cargo out to the battle group. It is impossible to differentiate between such consolidated deliveries and those that were transported for only one or two days from a much closer airhead, such as Mesirah on the north east coast of Africa.

The weight received ranged from 0 to over 340,000 lbs. It can only be assumed that those weights between 1-13,000 lbs were received by COD[4], or a small VERTREP, while those between 13,000 and 340,000 lbs could

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[4]Based on the receipt of cargo from two US-3A's with 2 external cargo pods. Reference; Center for Naval Analyses Report 1138--Vol. I, Aircraft for Carrier Onboard Delivery, by N.L. Spruill, J.A. Berning Jr., C.C. Peterson, and CDR. J.J. Seeberger USN, June 1980.

only be received via VERTREP from a nearby airhead, or from an MLSF pick-up from a major logistics port. Figure 5-4 shows the actual frequency distribution of cargo plus mail weight.

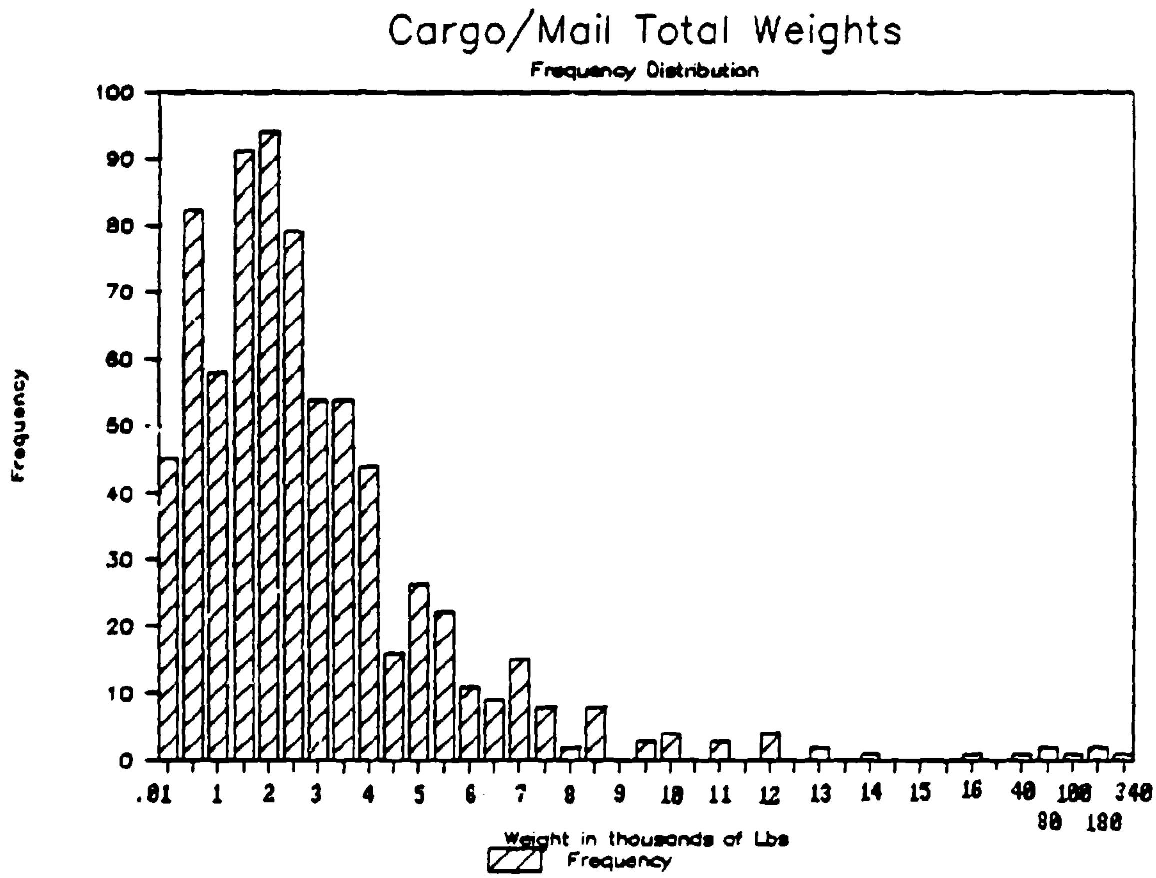

Figure 5-4 Cargo/Mail Total Weights

While these are significant assumptions, they are important to the analysis. They are needed in order to

conceptualize the length of time the material may have been in the pipeline by the time it reached the carrier.

c. Days Since Last COD/VOD

The number of days since the last COD/VOD receipt is the single most important explanatory variable in the data base. It addresses the question of how frequently the pipeline is connected to the carrier. The problem is that in order to perform quantitative analysis there must be sufficient data points in the realm of interest to analyze. Base on the actual frequency of COD/VOD deliveries, it is clear that the Navy recognizes the importance of external logistic support. The result, however, is that the range of observed days since last COD/VOD is very narrow and highly skewed.

Figure 5-5 shows the frequency distribution of days since last COD/VOD delivery. As pointed out in Chapter I, for every seven days a carrier was at sea it received material an average of 5 times. The range of observations was a severe limit on the explanatory value of this data element. It was unfortunate that more observations in the range of 10-15 days duration were not available from which to draw statistically significant conclusions.

The effects of the time between COD/VOD deliveries on readiness are two-fold. First, DTO requisition receipts for NMCS/PMCS requirements will have an

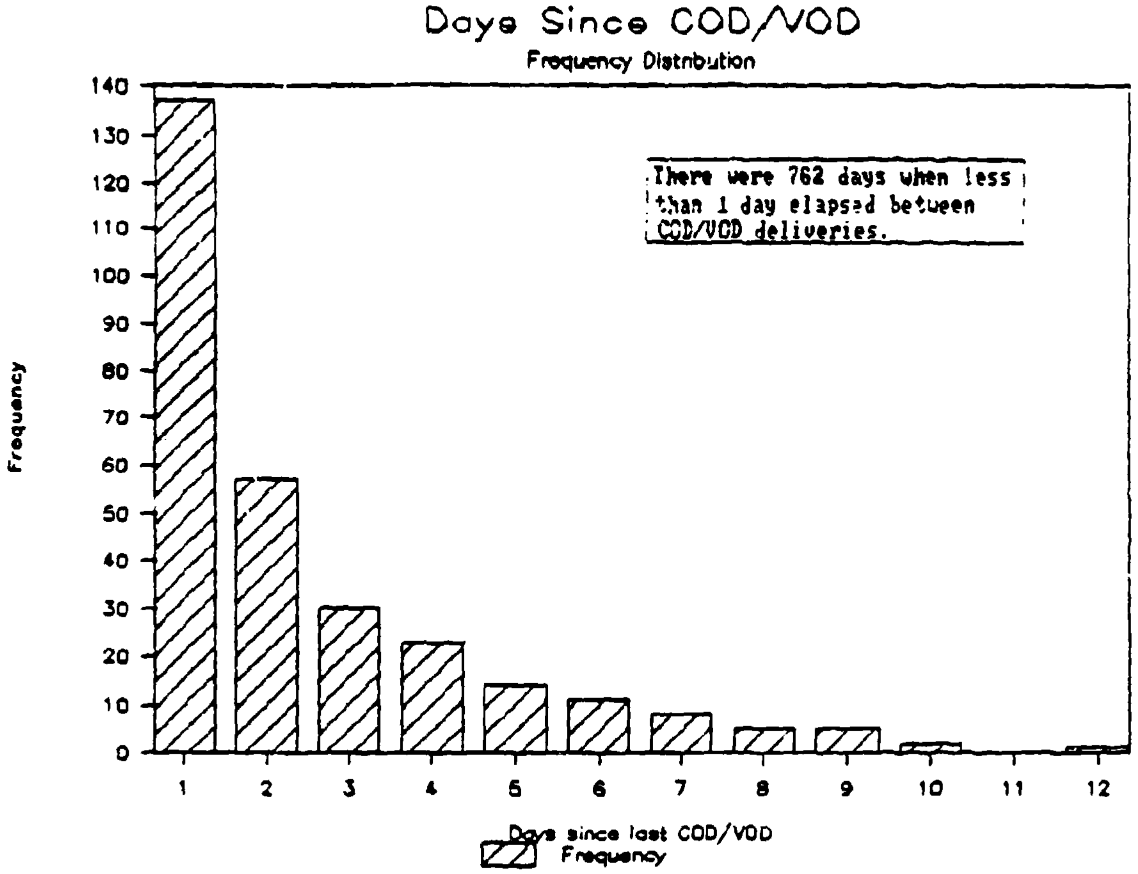

Figure 5-5 Days Since COD/VOD

almost immediate positive effect on readiness, as will the receipt of AWP parts for NMCS/PMCS requirements undergoing expeditious repair (EXREP) in AIMD. Second, the receipt of AWP requirements will improve the availability of stock (both rotatable pool and non-rotatable pool) via the AIMD repair cycle. This will also have a positive effect on readiness but on a less immediate basis. A number of lag

factors were evaluated to arrive at the best approximation between these short term and long term effects. They are discussed in detail in Chapter VI.

Periods of almost continuous pipeline connectivity will result in the receipt of stock replenishment material[5]. This will improve the onboard system's capacity to sustain itself through the brief period before the next COD/VOD delivery or port call.

A negative coefficient of regression is expected.

5. <u>Aircraft Reliability/Maintainability (A)</u>

It was not the intent of the thesis to explore specific issues of aircraft reliability and maintainability. Both of these factors are really fixed in the time context of the thesis and can therefore be ignored[6]. The role these factors play in the determination of readiness must, at least qualitatively, be included in the discussion of a readiness model.

a. Reliability

The frequency of maintenance for a given aircraft is highly dependent on the reliability factors

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[5] If there is no backlog of high priority mail, passengers or cargo awaiting delivery to the carrier, lower priority material will be funneled to the ship via the COD.

[6] All factors in a model are variable in the long run. In as much as reliability and maintainability are design characteristics of an aircraft, their influence will be considered constant over the horizon of a carrier deployment.

which were designed into it. As the reliability of an aircraft decreases the frequency of maintenance actions will increase. The logistic support requirements are thus highly influenced by those factors.[7]

b. Maintainability

Maintainability is also an inherent aircraft design characteristic dealing with the ease, accuracy, safety, and economy in the performance of maintenance functions. It may be measured in terms of elapsed times, personnel labor-hour rates, maintenance frequency, maintenance cost and related logistic support factors.[8]

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[7]Blanchard, p. 23.

[8]Blanchard, p. 32.

VI. ANALYSIS

Chapter V described the conceptual model proposed and explained how the data collected would be used to quantify the relationships. Chapter VI summarizes the specific steps taken to generate the mathematical models.

The analysis work was iterative and repetitive. Each individual candidate variable was analyzed. Then all the candidate variables in a group where evaluated together to select the best representative variable for the group. In Chapter V we described how each candidate variable was assigned to one of 3 groups. These groups were; level of demand, onboard logistic support, and external logistic support. Finally the best in each variable group where analyzed together to determine the best overall regression model.

Analysis was carried out in detail on the first group of variables, external logistic support. As good and useless procedures where identified, the analysis process was streamlined whereby everything that was done to the first variable was not necessarily considered for application on the last. As an example; data normalization (centering and standardizing) was found to add little to the explanatory power of the variables while adding considerably to the

complexity and intricacy of the analysis. Therefore normalization wasn't used.

Explanations of statistical terms and procedures will be limited to the conceptual level; more detailed discussions may be found in the reference material.

The chapter is divided into three subsections; general techniques and procedures applied, results of variable group analysis, and the development of the final model.

A. TECHNIQUES AND PROCEDURES

1. Model Selection

There are three general classes of models that can be constructed for purposes of forecasting and policy analysis: time-series; single-equation regression and multi-equation simulation. In time-series analysis no prior knowledge about real world causal relationships is assumed. Past behavior is examined in order to infer something about future behavior. In a single-equation regression model, the dependent variable is explained by a single function (linear or nonlinear) of explanatory variables. The equation may be time-dependent so that one can predict the response over time of the dependent variable given changes in one or more of the independent (explanatory) variables. The multi-equation simulation model is similar to the single-equation except some of the explanatory variables are related to each other as well as to the dependent variable. Single-equation regression techniques are used to construct each individual

equation and simulation techniques are used to solve the multiple equations simultaneously over some period of time.[1]

In theory the multi-equation approach would be the most appropriate for this analysis because external logistic support effects readiness performance in three ways. First, and most directly, it delivers the NMCS/PMCS DTO (direct turn-over) requisitions to the squadron maintenance personnel. Second, it delivers the DTO bit & piece part support to AWP (awaiting parts section of supply) for AIMD (air intermediate maintenance department) repair of both on ship NMCS/PMCS requirements (expeditious repair actions, EXREP's) and supply stock (Pool and non-Pool). And thirdly, it delivers the supply stock replenishment requisitions required to maintain supply support capacity and endurance.

Clearly quantifying these relationships would add to the explanatory power of a forecasting model. However, there are some trade-offs and problems with actually doing so. The more complex a model becomes the more difficult it is to use and interpret. Analysis would have to be done at a more detailed level within the AIMD-Supply-Squadron subsystems. Unfortunately data for the supply portion of

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[1]Pindyck, R.S. and Rubinfeld, D.L., Econometric Models and Economic Forecasts, 1st ed, McGraw-Hill Book Company, 1976, p. xv.

this subsystem is not available[2]. The multi-equation approach is beyond the desired scope of the thesis.

A time-series is not appropriate because substantial knowledge exists about how the independent variables behave in the real world. That leaves the single-equation regression model using ordinary (simple) least squares method as the best technique for use in the thesis.

2. Lagged Relationships

In Chapter IV the issue of when an activity generating data took place and when it was reported was discussed. The result was that some data was shifted back one day prior to its being entered into the master data base. This did not address the question of when an activity actually had an effect on the dependent variable. For example, the receipt of an NMCS requisition at t=0 may improve readiness at t+1 while the receipt of an AWP requisition (for an EXREP) may improve readiness at t+2 and the receipt of a stock replenishment requisition may sustain readiness from time t+7 to the end of the deployment. It is possible then to consider the lagged impact of requisition delivery as a continuous function of some form.

The coefficient of correlation was used to investigate the time lag relationship between each candidate

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[2] Supply data such as AVCAL gross effectiveness, percentage of range onhand, inventory investment, etc. are reported on a monthly basis. The aggregation of information on a monthly basis precludes realistic modeling of responses to external logistic support variables which change daily.

independent variable and the dependent variable. Figure 6-1 shows the plots of lagged Mail & COD/VOD versus FMC.

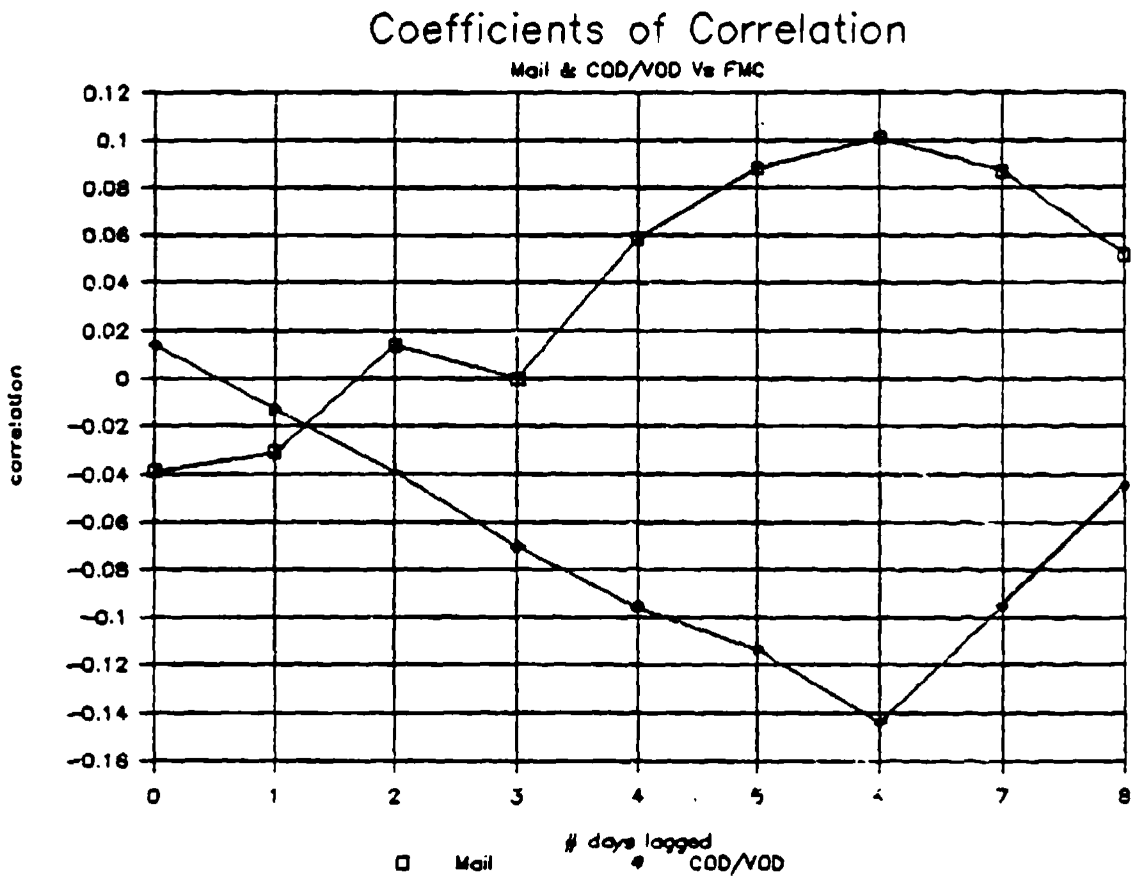

Figure 6-1 Coefficients of Correlation

Both plots suggest a distributed lag model[3] might be useful in gaining the optimum explanatory power from the variable. Considering the shape of the COD/VOD plot as an

[3]Pindyck & Rubinfeld, p. 211.

inverted probability density distribution, weighting factors for lag 1-8 were estimated.

lag	1	2	3	4	5	6	7	8
relative height	.6	2	3.5	4.8	5.7	7.2	4.8	2.3
w_1	.019	.0647	.113	.155	.184	.233	.155	.074

The weights were used to construct a regression model of the following form.

$$Y_t = \alpha + \beta(w_2X_{t-2} + w_3X_{t-3} + \ldots + w_8X_{t-8}) + \varepsilon_t$$

where:

w_i = correlation at lag i

X_{t-i} = dependent variable lagged i times

ε_t = residual error of the regression

Factors for t = 0 and t = 1 where left out because of their small relative distance from zero correlation.

The COD/VOD data was manipulated to create the required independent variable and it was regressed on FMC. The results are shown below compared to the results obtained by regressing on COD/VOD data lagged 6 days.

	α (t-statistic)	β (t-statistic)	R^2
distributed lag model	82.34 (482.05)	-.5901 (-4.70)	3.1%
single lag 6 days	82.25 (558.33)	-.3916 (-4.31)	2.1%

The most significant difference between the two methods is the value of the coefficient of regression, beta. Not only is there a big numerical difference (50% increase) between the two models, but more importantly it says that the number of days since the last COD/VOD has an even greater negative impact on FMC than is suggested by the single lag model. While the use of the distributed lag model would add value to the final model, it is also a rigorous procedure that adds too much complexity and time to the analysis effort.

The R^2 (coefficient of determination) tells us that 3.1% of the variation in FMC data can be explained by the changes in the COD/VOD data. While 3.1% or 2.1% is a small portion of total variation, it should be kept in mind that the material support received via COD/VOD delivery is only one of many factors in the equation affecting overall aircraft readiness. The question yet to be addressed is how sensitive readiness is to this seemingly small fraction of the logistic support system?

The t-statistic is generated by Minitab. It tells the analyst whether or not the calculated slope of the

regression line (beta) is significantly different from zero. The t-statistic alone means little without knowing the critical value of t (or z in our case) at which the null hypothesis should be rejected. Because of the large number of observations in the data base, the standard normal distribution tables may be used to obtain the normal variate, z, rather than the student's t variate.

An arbitrary selection of z = 2.00 was used throughout the analysis process as the critical value below which a candidate variable would be rejected from the model. This equates to a type I error probability, "α", of .0228 or, conversely, a probability of 97.72% that the true coefficient of regression, β, is not different from zero. This explanation also applies to the coefficients of partial regression encountered in multiple regression analysis.

All analysis leading up to the construction of the first complete model was done by selecting the single lag factor which had yielded the largest coefficient of correlation (either negative or positive depending on the conceptual relationship). There were, of course, some variables which did not require lagging such as days since last port visit and aircraft cannibalizations.

The idea of using the correlation coefficient to determine the best lag factor was double checked by regressing each lag factor individually against the dependent variable. The best t statistics and R^2

coefficients were generated by the same lag factor indicated by the correlation analysis.

Section B of this chapter summarizes the results of all analysis.

3. Assumptions of Regression Analysis

The ordinary least-squares method does not require any assumptions about the data population. However, to test the goodness of fit certain assumptions are necessary.

The dependent variable must be linearly related to each explanatory variable. This does not exclude the use of variables which have a non-linear relationship to the dependent variable but it does require that those variables be transformed to more closely approximate a linear relationship. To meet this requirement each independent variable was plotted against the dependent variable (FMC or MC) to allow visual inspection for non-linear relationships. A histogram of each independent variable was created to visually evaluate the distribution for normality and to allow comparison of different possible transformations such as logarithmic, inverse, polynomial, etc. NSCORES (a MINITAB command) was used to calculate the normal scores for each variable. The correlation coefficient of NSCORES and the variable data was used as a quantitative test for normality[4]. For those variables which had to be expressed

[4]Minitab Reference Manual, 2nd ed., Minitab Inc., 1985, p. 46.

in terms of a polynomial function, a regression equation using first, second and third order terms was constructed. This equation was then evaluated using the backward elimination method[5] and residual analysis to select the best combination of independent variables.

The second assumption required is that the population from which the regression error is drawn has a mean of zero. The ordinary least square process creates residuals whose mean is zero. Therefore, the only way to test this assumption is through theoretical means.[6] The problem created if this assumption is violated is that the constant term of the regression equation will be biased. When the final model is used to forecast future readiness, a constant term representing current FMC or MC will be specified. For this reason it is felt that a biased constant term will not affect the forecasting accuracy of the model.

The third assumption is that the error terms have a uniform variance and are not correlated with one another. Uniform variance is described as homoscedastic or in the case on non-uniform variance, heteroscedastic. If the error terms are correlated to each other they are said to be

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[5]Devore, J.L., <u>Probability & Statistics for Engineering and the Sciences</u>, 1st ed., Brooks/Cole Publishing Company, 1982, p. 501.

[6]Kennedy, Peter, <u>A Guide to Econometrics</u>, 1st ed., The MIT Press, 1979, p.72.

serially correlated or autocorrelated. Each condition will be discussed individually.

Visual inspection of residuals was the method used to detect heteroscedasticity[7]. Each independent variable was regressed against FMC or MC. A plot was made of the residual error versus the calculated FMC, Y_C. If it appeared that the absolute magnitude of the residuals was related to the independent variable then heteroscedasticity was suspected. However, the residual variance is a function of the distribution of the independent variable in the model as well as the variance of the true error term, so the presence of a pattern alone does not conclusively establish that heteroscedasticity exists[8]. In the specific cases where there were strong patterns such as with mail receipts and days since last COD/VOD, a review of the distribution of the number of observations of the independent variable suggested that the increased variability of the error term might be attributable to the increased number of observations. It was then assumed that all error terms had approximately uniform variances.

Serial or autocorrelation occurs in time-series data when the errors associated with observations in one time period carry over into future time periods. The

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[7]There are other more quantitative tests for heteroscedasticity such as Bartlett's, Goldfeld-Quandt, and Glejser tests.

[8]Pindyck & Rubinfeld, p. 106.

Durbin-Watson (DW) test, performed by Minitab, was used to identify autocorrelation. Rather than deal with the problem for each individual variable (many showed autocorrelation), only the final multiple regression models were studied.

There are three possible reasons for the model to display autocorrelation. Each reason involves a different type of interrelationship between independent variables and the dependent variable. The three general catagories are: spatial, influence of system shocks, and system inertia. A brief example of each follows.

a. Spatial autocorrelation occurs where the activities of the external logistic support system effect the onboard logistic support system, level of demand and readiness.

b. Influence of shocks can be observed when several days of heavy flight operations may be followed by an intense period of aircraft maintenance and therefore an increased level of demand on the logistic support system.

c. Inertia causes an influence when degraded supply support capacity will continue to have a negative impact on readiness until the next major resupply opportunity.

Autocorrelation results in an increase in the variance of the coefficients of partial regression, β_i, and leads to the conclusion that the parameter estimates are more precise than they actually are[9].

The Hildreth-Lu procedure[10], also known as differencing, was evaluated to correct for autocorrelation.

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[9]Pindyck & Rubinfeld, p. 107.

[10]Pindyck & Rubinfeld, p. 112.

The procedure assumes only first-order autocorrelation exists (which is probably not true, but, there is no reasonable method for solving the larger problem). The procedure is a relatively straightforward one involving the transformation of the dependent and independent variables and running them through the regression process to find a new regression equation of the form below:

$$Y_t^* = \beta_1(1-p) + \beta_2 X_{2t}^* + \beta_3 X_{3t}^* + \ldots + \beta_n X_{nt}^* + v_t$$

where:

$$Y_t^* = Y_t - pY_{t-1}$$

$$X_{2t}^* = X_{2t} - pX_{2t-1}$$

$$v_t = \varepsilon_t - p\varepsilon_{t-1}$$

The objective is to choose the value for "p" (read rho) which will minimize the sum of the squared errors (SSE) and thus bring the Durbin-Watson test statistic as close as possible to its optimal value of 2. The optimal value of the D.W. test occurs when the correlation between the regression error at time t and t-1 is zero indicating that they are independent of one another.

Identifying the value of rho involves selecting several values of rho, transforming the variables, running the regression, and comparing the values for SSE and DW. The table below shows the iterative results compared to the statistics of the unmodified FMC model.

	unmodified FMC model	p = .1	.4	.6	.459
SSE	6143	4518	3742	3701	3691
DW	1.03	1.3	1.89	2.26	2.01
R^2_{adj}	44.9	43.3	28.5	14.9	24.6

notes: 1. the t-statistic for each of the independent variables remained significant

2. the variables used in this evaluation are those displayed in Section D of this chapter.

The intercept term of the Hildreth-Lu adjusted model must be calculated as follows:

$$\alpha = \beta^*/(1-p)$$

where:

$\beta^* = \beta_1(1-p)$ or the constant term output from the regression calculation.

A second and faster method to eliminate the effects of autocorrelation is to apply Box-Jenkins time series analysis to the regression model residual error.[11] In this case, an autoregressive model of order two (ARIMA 2,0,0) produced the following equation:

$$\varepsilon_t = \underset{(-.04)}{-.00077} + \underset{(13.63)}{.3837}\varepsilon_{t-1} + \underset{(2.27)}{.0640}\varepsilon_{t-2} + \varepsilon$$

(t test)

note: the constant term is not significant and will not be added to the regression model.

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[11]Greer, W.R. Jr., and Liao, S.S., "Forecasting Capacity and Utilization in the U.S. Aerospace Industry", Journal of Forecasting, Vol. 5, Iss. No. 1, February, 1986.

The ARIMA equation above was then added to the original regression equation to obtain the forecasting model. Elimination of autocorrelation was confirmed by visual inspection of the ACF plot (autocorrelation factor) of the compound original/ARIMA model residual error.

The effects of these procedures on the predictive power of the models will be presented later in the chapter. It was noted that in those cases where the original residual plot pattern had indicated heteroscedasticity, the pattern, after the Hildreth-Lu conversion, had been completely eliminated or reduced.

The fourth assumption made when applying linear regression requires that it be possible to exactly duplicate the sample observation with the same independent variables. In other words the independent variables are not random (or stochastic). It is difficult to quantitatively evaluate how well the thesis models meet this assumption. Most of the independent variables could be considered stochastic in nature, e.g., the number of flying hours reported will be influenced at least in part by aircraft failures which are in themselves a stochastic function. In this case the ordinary least square estimator is biased but retains its asymptotic properties[12].

The fifth assumption made when applying linear regression is that the number of observations must be

[12]Kennedy, p. 92.

greater than the number of independent variables and that there are no exact linear relationships between the independent variables[13].

The first requirement is easily met since there are more than 1200 observations in the data base.

The second portion of the assumption deals with multicollinearity. It does exist in the model. The real question is whether or not the amount of multicollinearity is acceptable.

In Section A.1 of this chapter, the fact that some of the independent variables are related to each other was discussed. As part of the investigation into the strength of these relationships, lags of as much as 45 days for the four candidate variables for external logistic support were examined and correlated against five measures of onboard logistic support. Only 8 of the 20 possible combinations of inport periods, cargo weight, mail weight and days since last COD/VOD versus AVCAL gross, AVCAL net, Range %, 7R investment, and 1R investment could be said to be even weakly correlated ($.1 \leq R \geq .2$). Thus multicollinearity from this source is insignificant[14]. Two of the independent variables, 1R investment level and days since last port

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[13] Kennedy, p. 37.

[14] Intuitively these relationships should show some strong correlation, however, the onboard logistic support measures are also the most aggregated and thus the least sensitive explanatory variables in the data base.

visit, were transformed into 2nd degree polynomials. The multicollinearity between the X and X^2 factor was expected and was not so large as to be rejected by Minitab. There is a rule of thumb that says not to worry about multicollinearity if the t-statistics are all greater than 2.[15] This test was passed by all variables in the thesis models.

4. Measures of Goodness of Fit

The t test and coefficient of determination (R^2) were discussed in Section A.2. Three more important statistics are used to evaluated the overall model, the F-test, adjusted R^2 and standard error of estimate S_e.

The F test is a hypothesis test which can be used like the t-test. But it can also be used to test the overall significance of a multiple regression equation. The F-test measures the significance of the R^2 statistic. Specifically it tests the joint hypothesis that the coefficients of partial regression ($\beta_1, \beta_2, \beta_3, \ldots, \beta_n$) are not significantly different from 0. The F statistic can be readily calculated from Minitab output:

$$F = \frac{\text{Mean square regression (MSR)}}{\text{Mean square error (MSE)}}$$

As in the t-test, there must be a critical value of F at which the null hypothesis is accepted or rejected. With an alpha equal to .01, (probability of rejecting the null hypothesis when it is true, i.e. when R^2 is actually

[15] Kennedy, pp. 132.

zero), the number of variables in the model equal to 9, and over 600 observations used, the critical value of F equals 2.51.[16]

Adjusted R^2 is similar to R^2 except it has been adjusted for the loss of the number degrees of freedom caused by the addition of multiple variables. It is therefore the measure that must be used when measuring the portion of variation explained by a multiple regression model.

S_e (standard error of regression) is the measurement of the typical vertical distance from the sample data points to the regression line.[17] It can be thought of as the standard deviation about a calculated point estimated. S_e will be used later to construct a 95% confidence band or interval above and below the plot of calculated FMC. The goodness of fit of the regression model can be evaluated by seeing if the plot of actual observations fall inside the 95% confidence interval.

$$S_e = \sqrt{(\sum(Y-Y_c)^2/(n-m-1))}$$

where:

Y = observed FMC

Y_c = calculated FMC

---

[16] Devore, p. 624.

[17] Liao draft text, chap 2, p. 8.

n = number of data points used in the regression calculation

m = number of dependent variables

5. Procedures That Did Not Work

Acknowledging that the thesis process is a learning experience, there were a number of ideas about constructing the model that were incorrect or did not work as expected.

Because the data represented three years of carrier deployments, the idea of using time series analysis techniques were confused with causal or correlational analysis. It was thought that by removing long term trends in the dependent variable, better explanation of the relatively short term impact of the external logistic support system could be more clearly modeled. When the "short difference" of FMC was used, the independent variables failed the t-test. The long term changes in FMC were caused by the changes in the independent variables and removing that information from the data destroyed the explanatory power of the variables.

Sorting of the dependent variable into an increasing order of readiness and carrying with each observation the corresponding values of the independent variable was a conceptually correct idea, but, the t-test results where significantly lower when regressing with a sorted data base instead of one that was not sorted. Dropping the sorting idea allowed the most important independent variable (COD/VOD) to be retained in all multiple regression models,

where as before it had been forced out by failing the t-test. The Minitab manual does have a caution concerning the performance of the sorting algorithm. The caution suggests that rows with equal values may or may not be switched in order.

Normalization of the data elements was mentioned in the opening paragraph of the chapter. All the analysis of the external logistic support data elements was done both with and without normalization. In every case the same variables were identified as statistically significant. Therefore, normalization was not used on the remaining groups.

Stepwise regression was tried, but, the variables selected in the process were not the most logical combination that could be found. Manual backward elimination was more informative and produced a better mix of variables.

Six dummy variables where constructed to represent the 7 deployments in the data base. A dummy (also called indicator or categorical) variable may be introduced to capture the influences of a nonquantifiable variable or a variable which has a yes/no or either/or state. The dummy variable is assigned a value of either 0 or 1 to represent the two states. In this case 6 variables are required to represent the 7 different carriers. When these were the only independent variables in the model, 5 of the 6 had

very strong t-statistics and the models had an adjusted R^2 of 25-31%. It was thought that these dummy variables could be used to reduce the anticipated problem of autocorrelation. When they were added to a model with the other independent variables, most of the legitimate variables were forced out of the model. The dummy variables absorbed too much of the explanatory power.[18]

B. RESULTS OF VARIABLE GROUP ANALYSIS

Each of the three groups of variables was analyzed separately. The best candidate independent variables from each group were then combined and analyzed together to construct the final FMC and MC forecasting model.

Each group analysis was performed with basically the same steps:

1. Lag correlation analysis
2. Transformation determination
3. Individual regression
4. Individual regression residual analysis
5. Multiple regression on group members
6. Backward elimination to determine best overall explanatory variables for the group.

---

[18]From a management performance evaluation perspective, the dummy variable model alone could be used to quantitatively grade or monitor the degree to which future carriers outperform (or under perform) previous deployments. This monitoring could be done using statistical control charts which plot performance within a band of acceptable variation. Performance measures falling outside the acceptable range would indicate the possibility of a systemic problem.

The results of group analysis for constructing the FMC and MC models are summarized in tabular form. Note that the tables for both FMC and MC are grouped together under each step heading such as "Optimal Lag".

1. Level of Demand

Optimal Lag - FMC

Variable	Number of days	Coefficient of Correlation (R)
Flying hours	1	-.217
FMC Sorties	1	-.170
Number of A cond. aircraft	0	.014
Flying hours per Sortie	0	< .05
Flying hours per A cond. aircraft	1	-.217
Sorties per A cond. aircraft	1	-.165

Level of Demand

Optimal Lag - MC

Variable	Number of days	Coefficient of Correlation (R)
Flying hours	1	-.217
FMC Sorties	1	-.170
Number of A cond. aircraft	15	.157
Flying hours per Sortie	0	-.022
Flying hours per A cond. aircraft	1	-.225
Sorties per A cond. aircraft	1	-.186

Transformation Selection - FMC

Variable	Plot FMC Vs Var.	Correlation NSCORE Vs Var.	Trans-formation	New Correlation
Flying hours	NIP	.961	none	
FMC Sorties	NIP	.957	none	
Number of A cond. aircraft	NIP	.997	N/R	
Flying hours per Sortie		.687	sqr root	.836
Flying hours per A cond. aircraft	NIP	.962	none	
Sorties per A cond. aircraft	NIP	.939	none	

NIP - no identifiable pattern

N/R - not required
none - transformation did not improve the distribution

Because the dependent variable was not considered for transformation, the values for the NSCORE correlation and the transformation selection were the same for both FMC and MC. Only the plot patterns of the dependent versus the independent variable may be different.

Level of Demand

Transformation Selection - MC

Variable	Plot FMC Vs Var.	Correlation NSCORE Vs Var.	Trans-formation	New Correlation
Flying hours	NIP	.961	none	
FMC Sorties	NIP	.957	none	
Number of A cond. aircraft	NIP	.997	N/R	
Flying hours per Sortie		.687	sqr root	.836
Flying hours per A cond. acft.	NIP	.962	none	
Sorties per A cond. acft.	random	.959	none	

Individual Regression - FMC

Variable	α(t)	β (t)	R^2%	NSCORE R	Plot Pattern	Remarks
Flying Hours	83.1 (367)	-.009416 (-6.98)	4.7	.992	random	
FMC Sorties	82.8 (351)	-.016453 (-5.04)	2.6	.992	"	
# A Cond.Acft.	80.7 (32.8)	.01395 (.45)	0.0	——	——	
Flyhrs/Sortie	83.1 (367)	-.009416 (-6.98)	4.7	.992	random	
Flyhrs/ACond	83.2 (332)	-.7480 (-6.52)	4.6	.992	"	
Sorties/ACond	82.8 (319)	-1.3248 (-4.75)	2.6	.992	"	

Level of Demand

Individual Regression - MC

Variable	α(t)	β (t)	R^2%	NSCORE R	Plot Pattern	Remarks
Flying Hours	86.6 (415)	-.008654 (-6.96)	4.7	.994	random	
FMC Sorties	86.4 (399)	-.016572 (-5.53)	3.1	.994	"	
# A Cond.Acft.	74.5 (30.1)	.14012 (4.44)	2.5	.996	"	
Flyhrs/Sortie	85.5 (595)	-.005876 (-.62)	0.0	.992	heteroscedastic	
Flyhrs/ACond	86.7 (379)	-.7164 (-6.83)	5.0	.994	random	
Sorties/ACond	86.5 (366)	-1.4089 (-5.55)	3.4	.995	"	

Multiple Regression - FMC

Variable	1st iteration β	1st iteration t	Final iteration β	Final iteration t	remarks
Flying hours	-.01662	-.27	——	——	dropped
FMC Sorties	.0285	.25	——	——	dropped
# A Cond Acft	-.12759	-2.20	——	——	dropped
Flyhrs/sortie	.01442	1.46	——	——	dropped
Flyhrs/ACond	.4080	.08	-.7831	-7.17	
Sorties/ACond	-1.898	-.21	——	——	dropped
Date Index	.005279	9.62	.004604	9.64	
Constant ( )	90.4	20.8	80.9	241	

F = 18.5 R^2_{adj} = 14.6% F = 69.7 R^2_{adj} = 13.6%

Level of Demand

Multiple Regression - MC

Variable	1st iteration β	1st iteration t	Final iteration β	Final iteration t	remarks
Flying hours	-.04706	-.81	——	——	dropped
FMC Sorties	.1253	1.16	——	——	dropped
# A Cond Acft	.11777	3.25	——	——	dropped
Flyhrs/sortie	.00230	.25	——	——	dropped
Flyhrs/ACond	2.967	.64	-.7450	-7.38	
Sorties/ACond	-9.748	-1.11	——	——	dropped
Date Index	.003480	5.98	.003745	8.49	
Constant (α)	75.7	27.1	84.8	273	

1st iteration: F = 15.1 R^2_{adj} = 14.8% | Final iteration: F = 61.2 R^2_{adj} = 12.1%

2. Onboard Logistic Support

Optimal Lag - FMC

Variable	Number of days	Coefficient of Correlation (R)
7R cog investment	10	.319
1R cog investment	10	.170
Aircraft cannibalizations	0	-.198
Broadarrow benches	10	-.310
AVCAL gross effectiveness	8	.06
AVCAL line items	5	.039
Range percent	30	.396
RO percent	21	.372

Onboard Logistic Support

Optimal Lag - MC

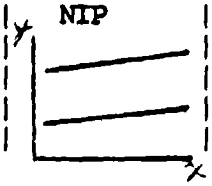
Variable	Number of days	Coefficient of Correlation (R)
7R cog investment	0	.243
1R cog investment	15	.132
Aircraft cannibalizations	1	-.175
Broadarrow benches	10	-.328
AVCAL gross effectiveness	8	.134
AVCAL line items	0	.111
Range percent	0	.401
RO percent	0	.468

Transformation Selection - FMC

Variable	Plot FMC Vs Var.	Correlation NSCORE Vs Var.	Best Trans.	New Correlation
7R cog investment		.953	none	
1R cog investment	NIP	.988	N/R	
Aircraft cannibalization	NIP	.992	N/R	
Broadarrow benches		.983	log e	.991
AVCAL gross effectiveness	NIP	.922	trimmed outlyers	.992
AVCAL line items	NIP	.923	none	
Range percent		.986	N/R	
RO percent		.928	none	

Onboard Logistic Support

<u>Transformation Selection - MC</u>

Variable	Plot MC Vs Var.	Correlation NSCORE Vs Var.	Best Trans.	New Correlation
7R cog investment		.953	none	
1R cog investment		.988	N/R	
Aircraft cannibalization		.992	N/R	
Broadarrow benches		.983	Loge	.991
AVCAL gross effectiveness	NIP	.922	trim data	.992
AVCAL line items	NIP	.923	none	
Range percent		.986	N/R	
RO percent		.928	none	

Onboard Logistic Support

Individual Regression - FMC

Variable	α(t)	β (t)	R^2%	NSCORE R	Plot Pattern	Remarks
7R cog invst.	77.6 (182)	see note 4.111^{-5}	10.2	.988	random	
1R cog invst. X	28.66 (4.5)	.008321 (7.99)	8.2	.988	random	
X^2		-3.2^{-7} (-7.57)				
Aircraft cannibalization	83.3 (319)	-.08623 (-6.70)	4.6	.992	random	
Broadarrow benches	83.3 (90)	-1.7197 (-2.66)	6.1	.987	random	
AVCAL gross effectiveness	79.5 (62.6)	.02847 (1.78)	.4	.989	random	
AVCAL line items	81.3 (10.6)	2.9^{-5} (.24)	.1	.994	random	dropped
Range percent	28.7 (4.5)	.58960 (8.41)	7.2	.991	random	
RO percent	67.0 (30.7)	.16689 (6.89)	5.1	.984	random	

note: superscripted numbers in these tables indicate scientific notation, not exponents

Onboard Logistic Support

Individual Regression - MC

Variable		α(t)	β(t)	R^2%	NSCORE R	Plot Pattern	Remarks
7R cog invst.		82.5 (182)	2.89^{-5}	5.9	.992	possible curve	
1R cog invst.	X	67.89 (11.1)	.002577 (2.57)	2.1	.993	random	
	X^2		-9.0^{-8} (-2.25)				
Aircraft cannibalization		86.5 (378)	-.05899 (-5.40)	3.1	.994	random	
Broadarrow benches(log e)		86.7 (282)	-.28247 (-4.34)	1.9	.993	random	
AVCAL gross effectiveness		81.0 (72.7)	.05613 (3.99)	1.8	.994	random	
AVCAL line items		79.3 (9.27)	8.98^{-5} (.67)	1.2	.989	random	
Range percent		10.4 (.37)	.8236 (2.67)	16.1*	.984	random	
RO percent		55.4 (5.83)	.3267 (3.13)	21.9*	.988	random	

* The regression process used only 38 cases out of 1260. All other regressions used in excess of 500 cases.

Onboard Logistic Support

Multiple Regression - FMC

Variable	1st iteration ß	t	Final iteration ß	t	remarks
7R cog invst	3.869^{-5}	5.04	$3.5E^{-5}$	4.94	
1R cog invst X	-6.979^{-4}	-3.35	-6.555^{-4}	-3.42	
X^2	.62377	9.79	.58652	9.73	
Aircraft cannib	-.04885	-3.97	-.04899	-4.25	
Broadarrow benches	.03184	.43	—	—	dropped
AVCAL gross effectiveness	.12802	6.58	.10903	5.99	
Range percent	.32070	3.21	—	—	dropped*
RO percent	-.09705	-2.99	—	—	dropped*
Constant	5.5	.62	30.2	6.54	
	F = 50.7	R^2_{adj} = 39.4%	F = 79.9	R^2_{adj} = 36.0%	

* Although these two variables were statistically significant in the first iteration, the sign of the RO% coefficient was illogical. When RO% was dropped, Range % failed its t-test. Neither Range % nor RO% could pass their t-test when placed in the model individually.

Onboard Logistic Support

Multiple Regression - MC

Variable	1st iteration ß	t	Final iteration ß	t	remarks
7R cog invst	5.527^{-5}	2.82	3.78^{-5}	4.94	
1R cog invst. X	7.08^{-4}	.16	——	——	
X^2	6.00^{-8}	-.33	——	——	
Aircraft cannib	-.0570	-1.85	-.05248	-1.86	
Broadarrow benches	-.3349	-2.19	-.2544	-2.08	
AVCAL gross effectiveness	.03765	.79	——	——	
Range percent	.2261	.66	——	——	dropped
RO percent	.00927	.10	——	——	dropped
Constant	57.5	2.11	83.2	55.3	
$F = 4.14$ $R^2_{adj} = 20.7\%$			$F = 9.3$ $R^2_{adj} = 17.5\%$		

3. External Logistic Support

Optimal Lag - FMC

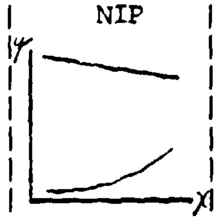
Variable	Number of days	Coefficient of Correlation (R)
Inport periods	0	-.067
Cargo receipts	11	.086
Mail receipt	6	.101
Days since last COD/VOD	6	-.144
Days since last Port visit	0	.210

External Logistic Support

Optimal Lag - MC

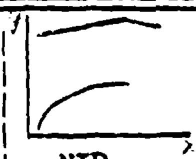
Variable	Number of days	Coefficient of Correlation (R)
Import periods	0	.078
Cargo receipts	11	.095
Mail receipt	6	.053
Days since last COD/VOD	0	.073
Days since last Port visit	0	.118

Transformation Selection - FMC

Variable	Plot FMC Vs Var.	Correlation NSCORE Vs Var.	Best Trans.	New Correlation
Import periods		.988	N/R	-----
Cargo receipts	NIP	.284	Log e	.977
Mail receipts	NIP	.900	Log e	.971
Days since last COD/VOD		.906	Log e	.997
Days since last Port visit		.944	Polynomial	-----

External Logistic Support

Transformation Selection - MC

Variable	Plot MC Vs Var.	Correlation NSCORE Vs Var.	Best Trans.	New Correlation
Import periods		.988	N/R	-----
Cargo receipts		.284	Log e	.977
Mail receipts	NIP	.900	Log e	.971
Days since last COD/VOD	NIP	.906	Log e	.997
Days since last Port visit	NIP	.944	Polynomial	-----

Individual Regression - FMC

Variable		α(t)	ß (t)	R^2	NSCORE R	Plot Pattern	Remarks
Import periods	X	81.8 (596)	5.749 (3.0)	.9%	.992	random	
	X^2		-2.678 (-2.59)				
Cargo receipts		79.9 (94)	.3356 (2.57)	1.4%	.994	random	data not transformed
Mail receipts		81.5 (429)	2.0232^{-4} (2.85)	1.0%	.991	hetero-scedastic	data not transformed
Days since last COD/VOD		82.5 (558)	-.39167 (-4.31)	2.1%	.997	"	
Days since last Port visit	X	82.1 (249)	-.09525 (-2.96)	6.9%	.992	"	
	X^2		.0021847 (2.96)				
	X^3		-9.510^{-6} (-2.07)				

External Logistic Support

Individual Regression - MC

Variable		α (t)	β (t)	R^2	NSCORE R	Plot Pattern	Remarks
Inport periods	X	85.4 (679)	4.75 (2.7)	.9%	.994	random	
	X^2		-2.1231 (-2.23)				
Cargo receipts (Log e)		83.2 (109)	.3586 (3.02)	1.9%	.995	random	Log e tranformed
Mail receipts		85.3 (491)	9.66^{-5} (1.49)	.3%	.992	hetero-scedastic	data not transformed
Days since last COD/VOD	X	85.3 (600)	.577276 (2.94)	.8%	.993	random	
	X^2		-.05973 (-2.20)				
Days since last Port visit	X	86.1 (260)	-.10859 (-3.62)	3.1%	.993	"	
	X^2		.002439 (3.54)				
	X^3		-1.237^{-5} (-2.89)				

External Logistic Support

Multiple Regression - FMC

Variable	1st iteration β	1st iteration t	Final iteration β	Final iteration t	remarks
Import X	-.068	-.02	—	—	dropped
X^2	.185	.09	—	—	dropped
Cargo	.3102	2.28	—	—	dropped
Mail	1.6035^{4}	1.81	—	—	dropped
COD/VOD	-.1085	-.46	-.30844	-3.42	
Port Days X	-.09879	-1.67	-.12303	-3.73	
X^2	.001435	1.10	.0024272	3.18	
X^3	-2.6^{-6}	-.31	-1.003^{-5}	-2.08	
Constant (α)	80.8		82.9	236	

1st iteration: $F = 5.6$ $R^2_{adj} = 9.4\%$ | Final iteration: $F = 19.1$ $R^2_{adj} = 7.8\%$

Multiple Regression - MC

Variable	1st iteration β	1st iteration t	Final iteration β	Final iteration t	remarks
Import X	-2.781	-.74	—	—	dropped
X^2	1.512	.77	—	—	dropped
Cargo Log e	.3657	2.92	.3622	2.91	
Mail	1.4585^{4}	1.79	.0001488	1.84	
COD/VOD X	.8464	3.07	.8698	3.18	
X^2	-.06904	-1.97	-.07104	-2.04	
Port Days X	-.15938	-3.01	-.14730	-2.93	
X^2	.003369	2.86	.003146	2.77	
X^3	-1.76^{-5}	-2.36	-1.638^{-5}	-2.26	
Constant (α)	83.8	80.1	83.7	81.7	

1st iteration: $F = 5.24$ $R^2_{adj} = 9.2\%$ | Final iteration: $F = 6.67$ $R^2_{adj} = 9.6\%$

C. FINAL FMC MODEL CONSTRUCTION AND SELECTION

The FMC group analysis narrowed the field of candidate explanatory variables from 20 to 8. The surviving variables by group were:

Level of Demand

1. Flying hours per A condition aircraft (no transformation)

2. Date index; a time series variable (no transformation)

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1. 7R Cog inventory investment (no transformation)

2. 1R Cog inventory investment (second order polynomial)

3. Number of daily aircraft cannibalization actions (no transformation)

4. AVCAL gross supply effectiveness (no transformation)

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1. Days since last COD/VOD (no transformation)

2. Days since last working port visit (third order polynomial).

All of the above independent variables were combined into a single equation and regressed against FMC as the dependent variable.[19] The only variable to completely drop out (by failing to have a 2 or better on the t-test) was the number of daily cannibalizations. The cubic factor of days

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[19]Several of the other independent variables that had been dropped during group analysis were also placed into one or more of the larger "final" regression equations. The reactions of the coefficients and t-statistics of the other variables was interesting to observe, however, in the final analysis none of these added variables could be retained.

since last working port visit failed the t-test and was dropped out. For the purposes of discussion, the model produced after these two variables dropped out will be called the "1st model."

The 1st model had a Durbin-Watson statistic of 1.03 indicating the presence of autocorrelation. Section A.3 of this chapter described two techniques to correct this problem. Thus the decision to be made was which correction technique, Hildreth-Lu (H-L) or Box-Jenkins (B-J), would produce the best forecasting model.

Two principal methods to evaluate the "fit" of the models were employed; statistical and graphical. The statistical method uses mean absolute percentage error (MAPE), the adjusted coefficient of determination (R^2_{adj}), the F test statistic and the standard error of estimation (S_e or σ). The graphical method uses a visual comparison of plotted actual FMC versus calculated FMC with a 95% confidence interval.

The statistical results are presented below:

	R^2_{adj}	F-test	S_e	MAPE
1st model	44.9%	64	3.002	2.84%
H-L model	65.1%	126	3.223	3.08%
B-J model	81.7%	218	2.485	2.33%

MAPE has not been previously described. It is the average percentage difference between the value of the observed (Y_o) and calculated (Y_c) dependent variable.

$$\text{MAPE} = \frac{1}{n} \sum \left| \frac{(Y_o - Y_c)}{Y_o} \right|$$

The MAPE values shown above were determined through ex-post forecasting[20]. The actual observed values of the independent variables were the inputs to the model and the calculated values of FMC were compared to the observed values of FMC. As judged by MAPE, the B-J model should be the best forecasting model, but, the value of MAPE for each of the other models is considered excellent.

The R^2_{adj} statistic indicates that the B-J model explains the largest percentage of variations in the dependent variable (FMC). And, the F-test indicates that each R^2_{adj} is statistically significant at well above the 99% (alpha = .01) level.

The S_e statistic indicates that the B-J model has the smallest standard deviation about the regression line and will have the narrowest (best) 95% confidence interval[21]. This can be seen in the plots.

---

[20] Pindyck & Rubinfeld, p. 157

[21] Confidence interval is calculated as follows:

$$\text{Interval} = \pm 1.96(S_e)$$

Graphically the B-J model presents the best visual fit for both the regression line and confidence interval. The observed values are within the 95% confidence interval. The overall trends are well predicted. And, the changes is direction (up and down) are well matched.

Because of the high data density and rapid, frequent data fluctuations, a clear plot of both actual and calculated FMC could not be presented on one graph. Figure 6-2 shows the 95% confidence intervals for the 1st model together with the observed FMC data. Figure 6-3 shows the actual FMC observations for the past seven consecutive carrier deployments and the 95% confidence interval for the H-L model. Figure 6-4 shows the actual FMC observations and the 95% confidence interval for the B-J model. Figures 6-5 and 6-6 are the calculated FMC for H-L and B-J models respectively. Figure 6-7 is the original observed FMC data plotted by itself.

Looking at the confidence interval plots, it can be seen that not all of the actual observations fall within the 95% confidence interval. However, it must also be observed that in almost every such case the penetration of the confidence interval band occurs at a point where the plot has been

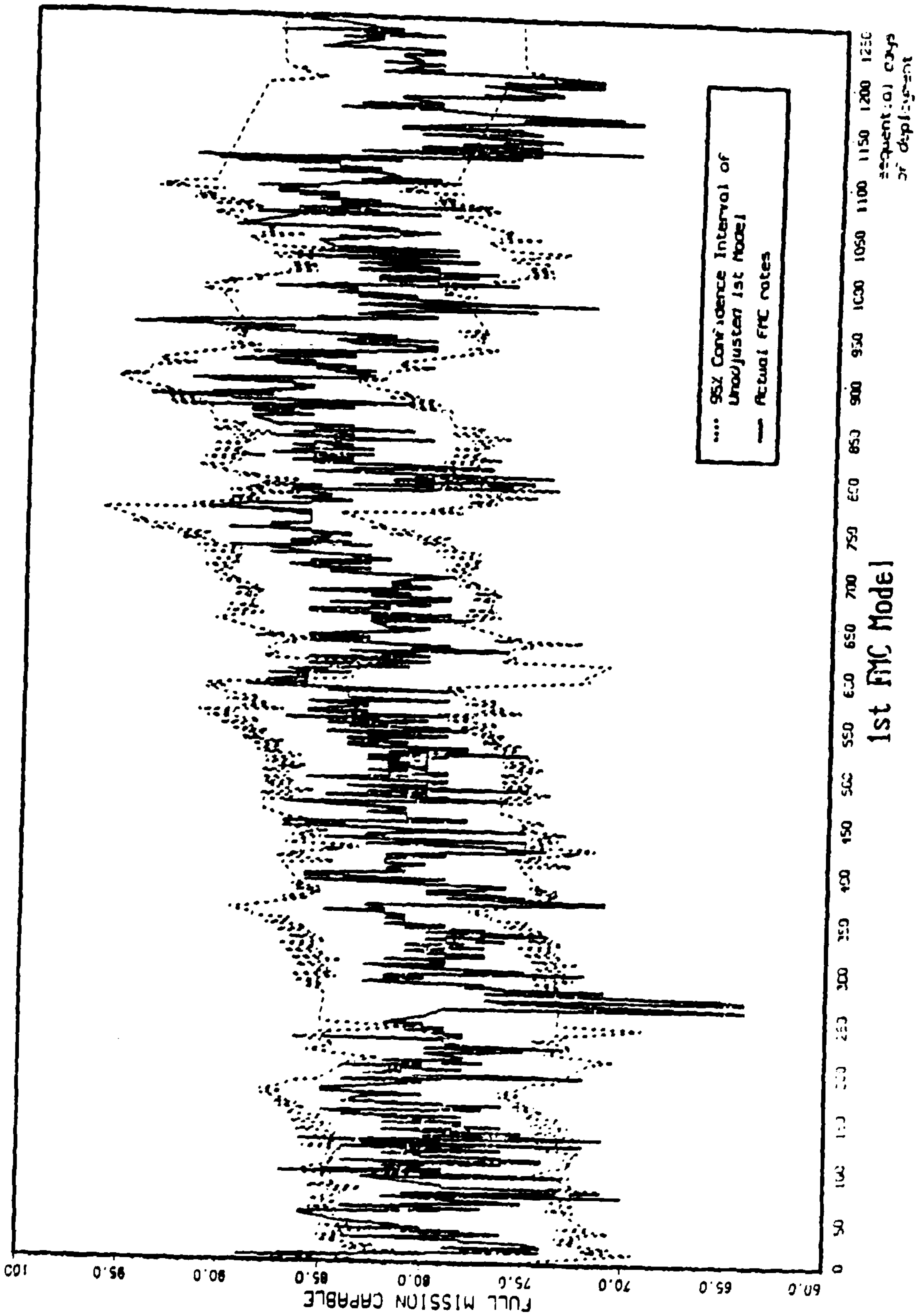

Figure 6-2 1st FMC Model

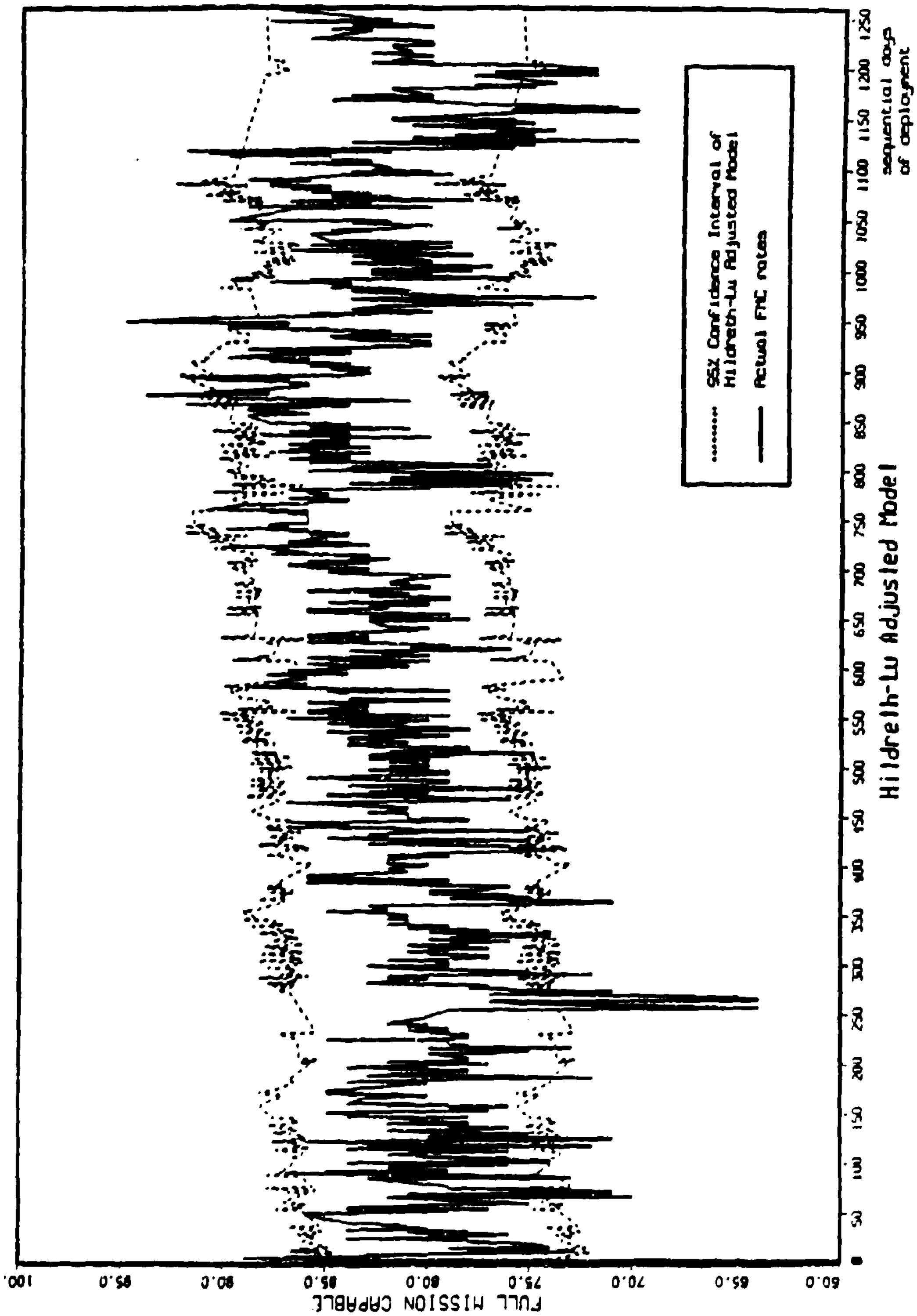

Figure 6-3 Hildreth-Lu Adjusted Model

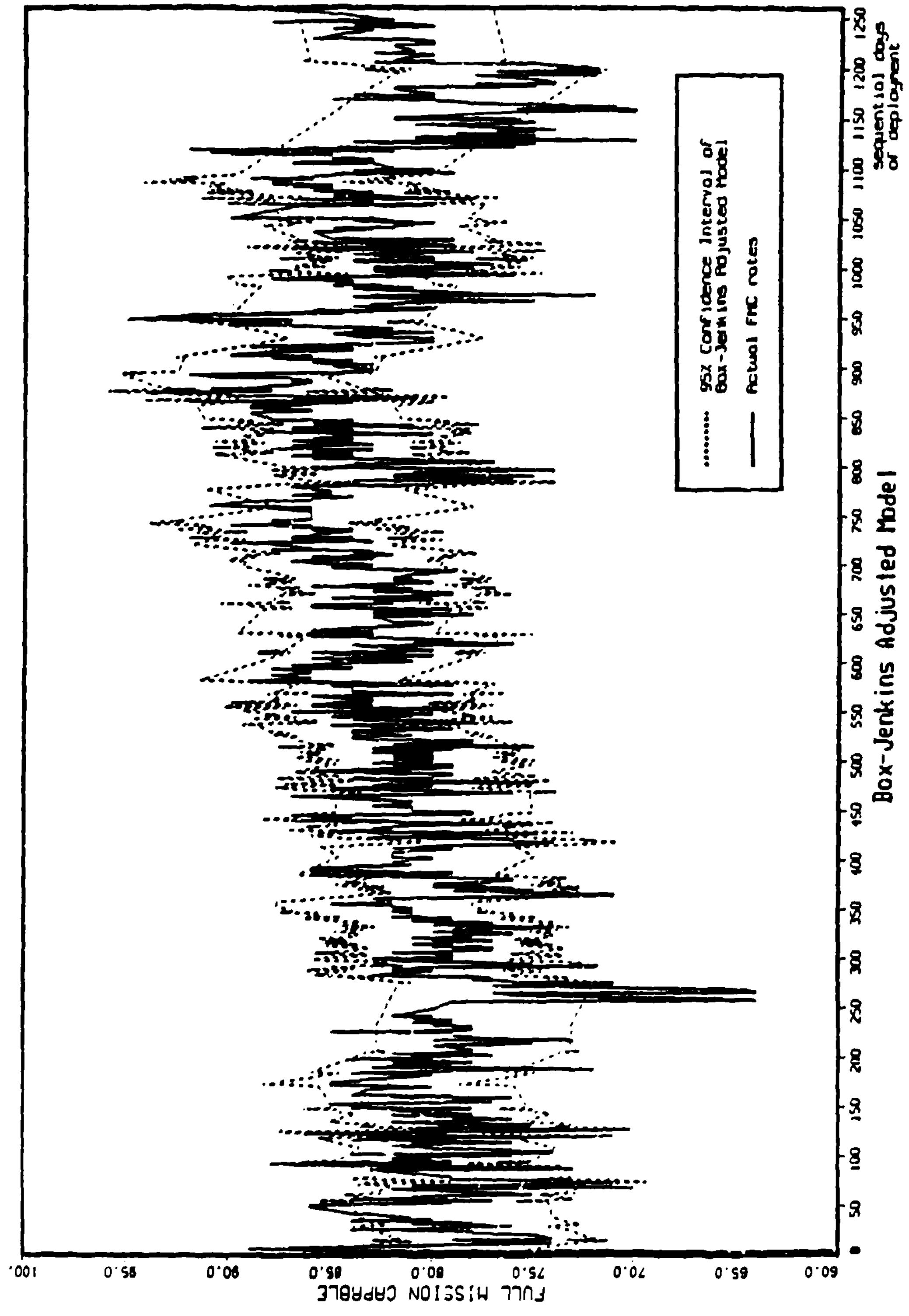

Figure 6-4 Box-Jenkins Adjusted Model

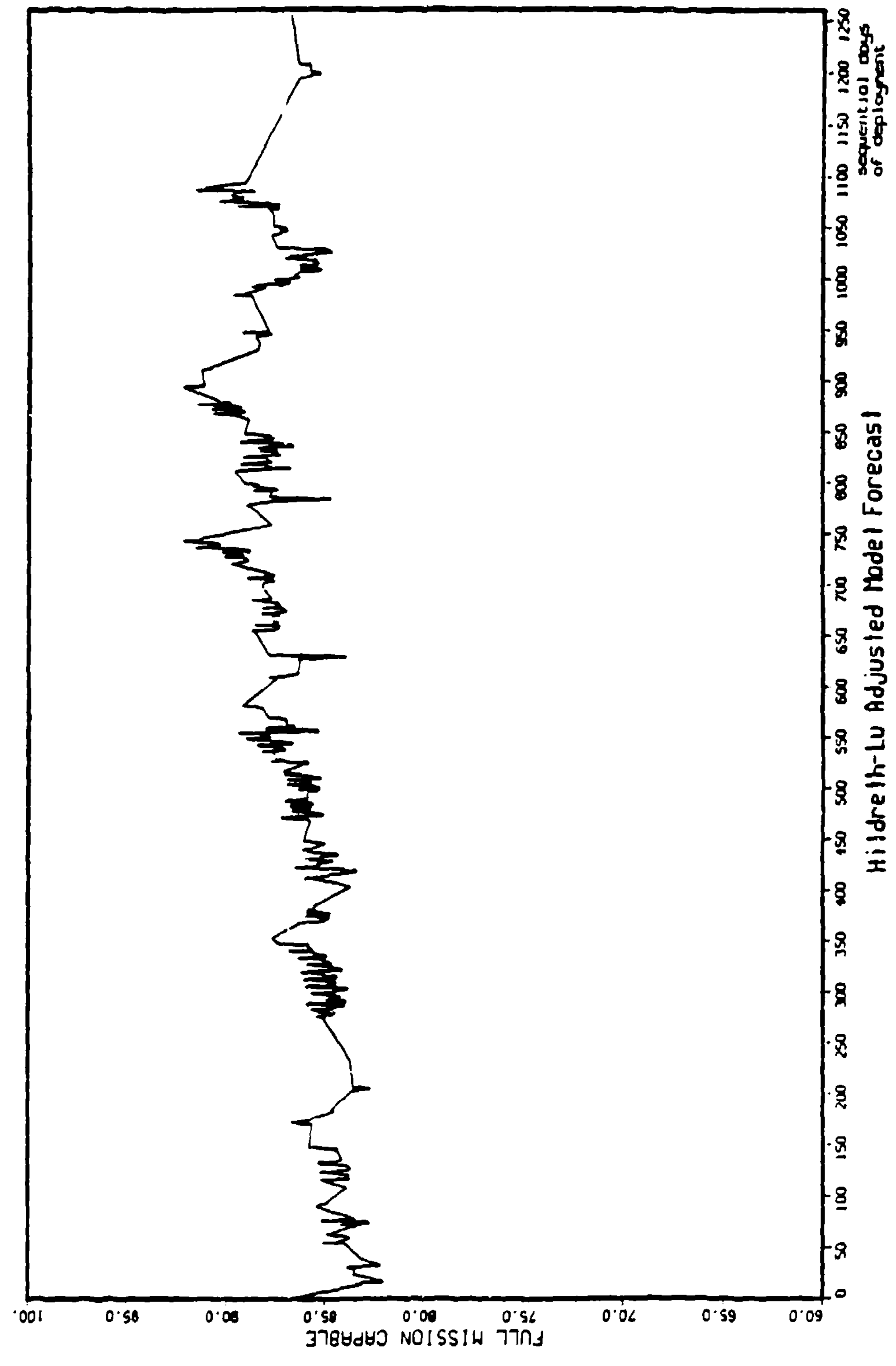

Figure 6-5 Hildreth-Lu Adjusted Model Forecast

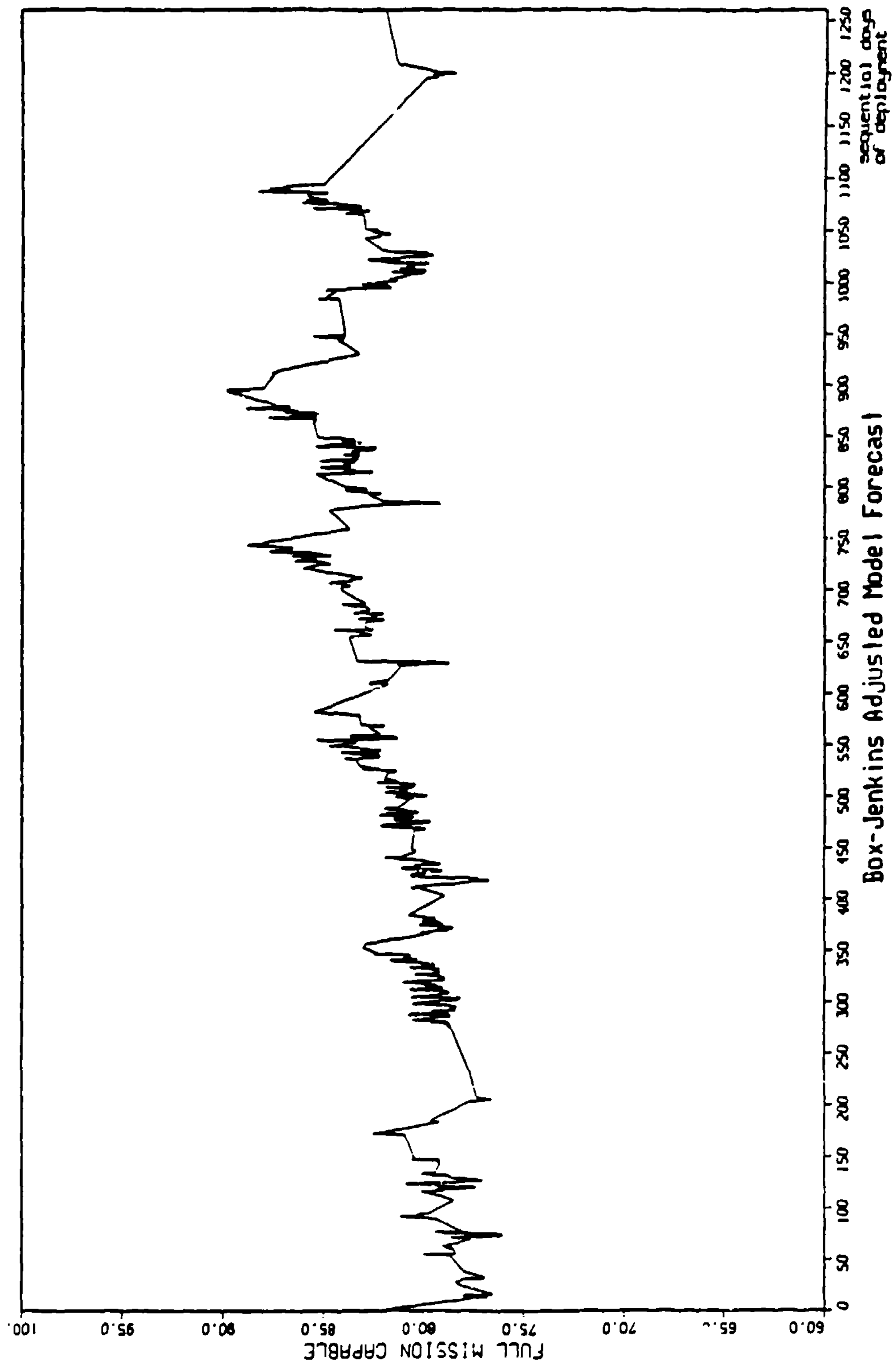

Figure 6-6 Box-Jenkins Adjusted Model Forecast

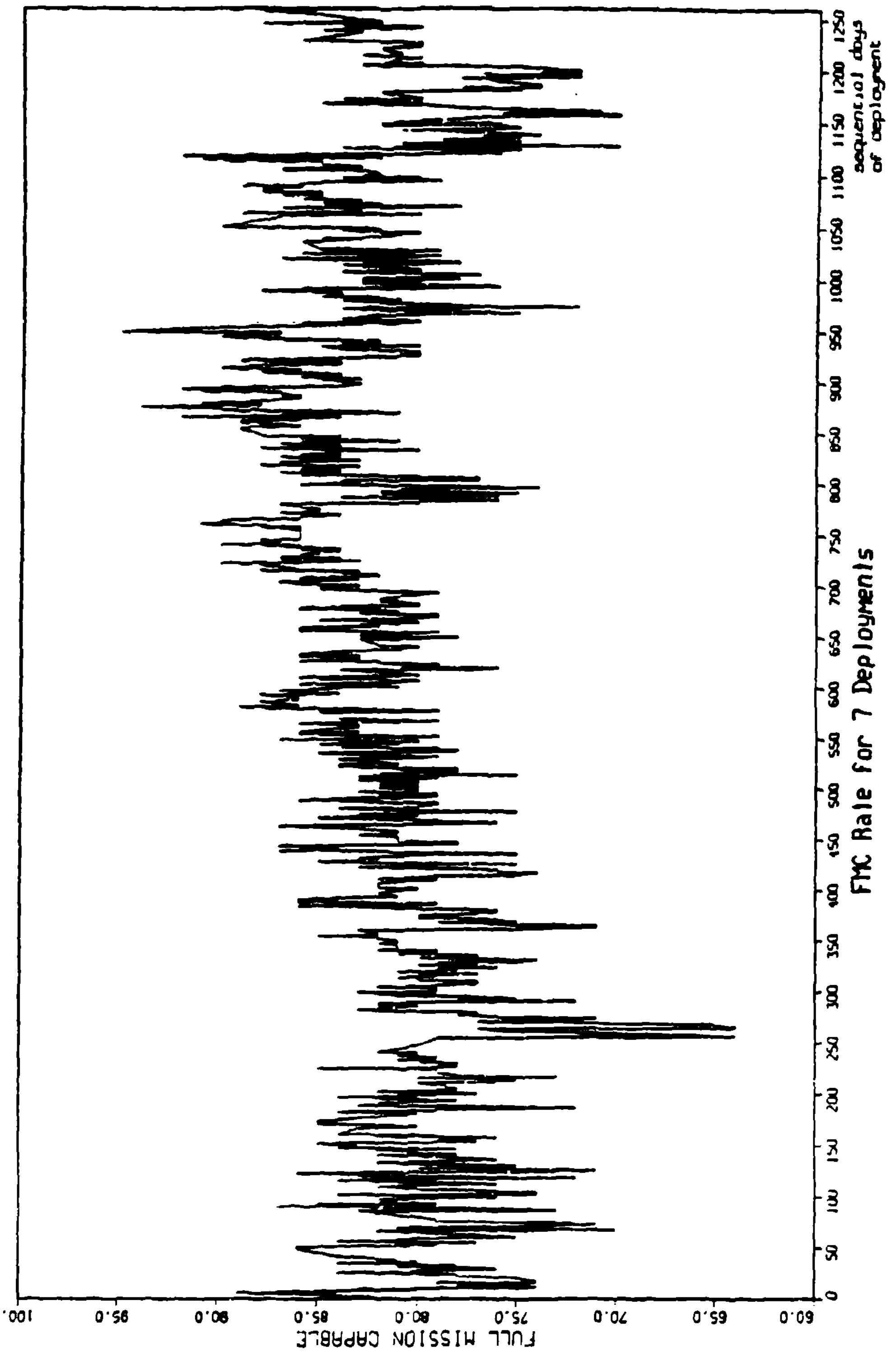

Figure 6-7 FMC Rate for 7 Deployments

"artificially" constructed[22]. Thus, these penetrations do not represent a failure of the model and it can be concluded that the model's forecasting performance is excellent.

The Box-Jenkens adjusted model was selected for use as the forecasting model. However, to further test the validity of the B-J model, the original data was divided into two groups, one with 1060 observations and the second with 200 observations. Normally, the last or most recent 200 observations would have been selected. But in this case the explanatory information embodied in the last 200 observations were crucial to the successful construction of any forecasting model. Thus the 200 observations held out were the first 200 observations in the data base.

The results of this final evaluation were excellent. The coefficients of each independent variable in the new model closely matched those of the original B-J model. MAPE was 2.19% and S_e was 2.09. When the new model was used to create a "Hold-out" forecast, the MAPE between the forecasted FMC_{200} and actual FMC_{200} was 3.33%. Figure 6-8 shows the 95% confidence interval constructed from the FMC

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[22]The source data, both observed and calculated, did not contain values of FMC or MC for each day of deployment. The computer program used to generate the plots could not plot from a data file containing missing data. To overcome this problem a smoothing program was added to the plotting routine. The smoothing program calculated the total change between the last and next known value. Missing data were then replaced with the average incremental change which had occurred over the range of missing observations.

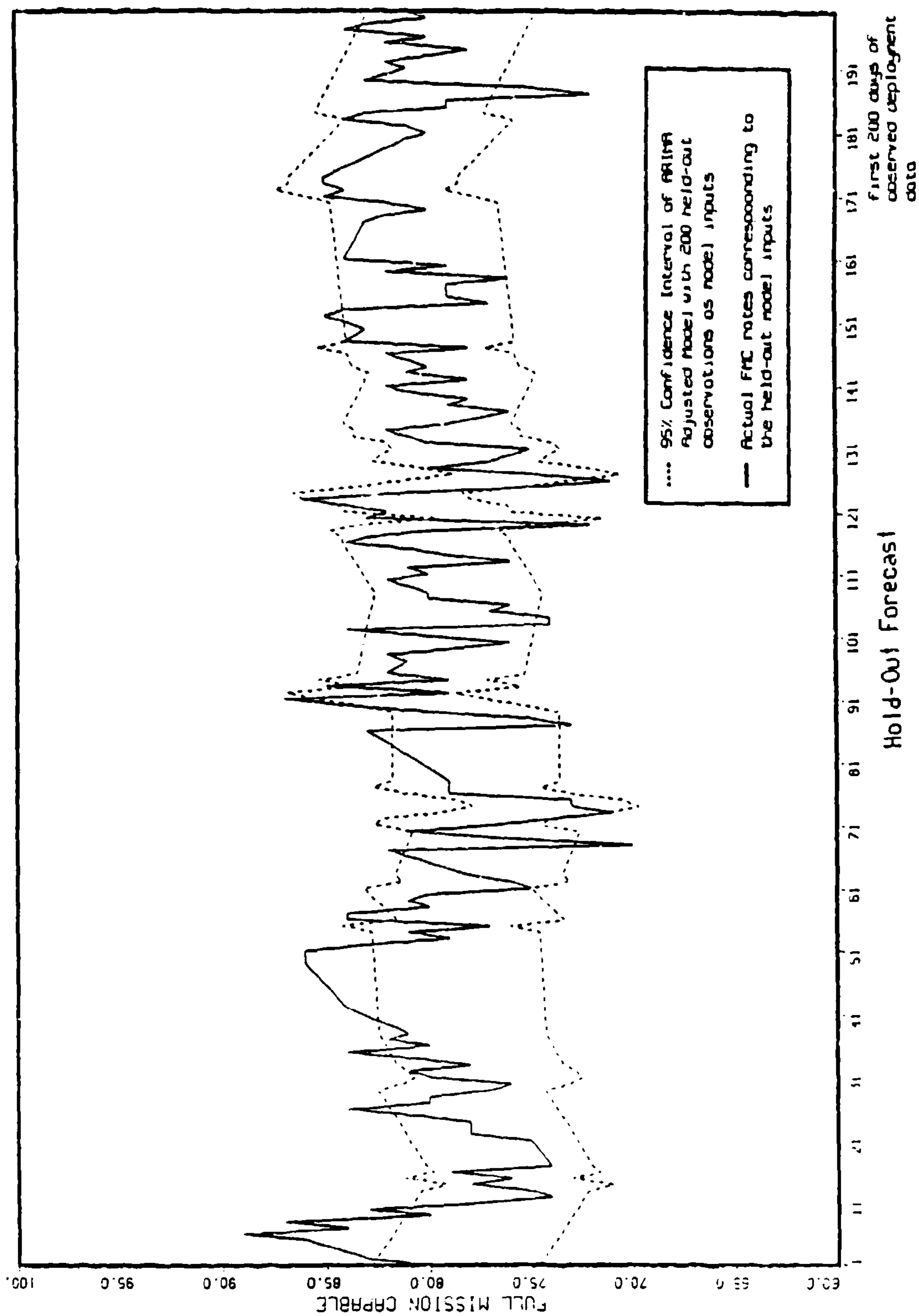

Figure 6-8 Hold-Out Forecast

calculated by the hold-out model using the 200 observed independent variable values as input, together with the observed FMC values corresponding to the 200 days used as inputs. Aside from the large number of missing forecast points, the hold out model did an excellent job of forecasting FMC.[23]

The above technique of holding out a portion of the observed data, constructing the forecasting model with the remaining data and then using the data held out as unconditional inputs to the forecasting model, allows the analyst to test the forecasting model with actual inputs that are associated with a known output.

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[23] Input values for the Box-Jenkins lagged error residuals were generated by first computing the forecasted FMC without the Box-Jenkins variables; subtracting the forecasted FMC from the actual FMC to produce an error term; then lagging this error term by 1 and 2 days; these lagged error terms were then multiplied by their corresponding ARIMA coefficients and the results [illegible] to the forecasted FMC. As is discussed in note 24, [illegible] essentially means that the forecasts would [illegible]ave only be[illegible] made one day into the future.

D. FMC FORECASTING MODEL

The final and best forecasting[24] model for FMC is:

$$FMC = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11}$$

where:

[24]The terms 10 and 11 are the factors added from the ARIMA residual error equation to correct for autocorrelation. Because the forecasting model is not based solely on time, the values for terms 10 and 11 cannot be forecasted based on time. This essentially limits the use of these terms to producing a forecast for only one day into the future; as an example: If today is t = 0, we know what true FMC is and we can calculated what the forecasting model would have predicted for today (and likewise for yesterday). To forecast for t+1 (tomorrow) we need the residual error for t = 0 (today's error) and t-1 (yesterday's error), but because that's easy we know those values. But to forecast t+2, we need the forecast residual error for t+1 and t+0 and that is impossible because t+1 represents the difference between the forecast for tomorrow and tomorrow's actual FMC. All of the projections and interpretations of Chapter VII were based on forecasts made without the residual terms.

Term	Nomenclature	Coefficient	Standard Deviation	t-test	Observed Data Minimum	Observed Data Maximum
â	constant	50.303	6.358	7.91	64.0%	95.0%
1	COD/VOD	-.37477	.08454	-4.43	0	12 days
2	FlyHrs/A cond	-.50338	.09105	-5.53	0	5.6 hrs/acft
3	7R invest	.00002941	.00000678	4.34	$58,285K	$173,453K
4	1R invest	.004753	.001021	4.66	$ 8,431K	$15,378K
5	$(\text{1R invest})^2$	-.00000026	.000000004	-6.22	——	——
6	AVCAL gross	.06224	.01312	4.75	43%	91%
7	Port days	-.05017	.01410	-3.56	0	121 days
8	$(\text{Port days})^2$	.0007469	.0001380	5.41	——	——
9	Date index	.012568	.001049	11.98	13	1094
10	residual_{t-1}	.3837	.0281	13.63	——	——
11	residual_{t-2}	.0639	.0281	2.27	——	——

E. MC FORECASTING MODEL

The development of the final forecasting model for MC followed th ame preliminary steps as those of the FMC model. Difficulty was encountered, however, during the final step of removing autocorrelation. It is believed that with an adjusted R^2 of only 25.8% there is simply too much unexplained variation contained in the residual error term for any adjusting technique to work well. The final MC forecasting equation is presented below.

$$MC = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

where:

Term	Nomenclature	Coefficient	Standard Deviation	t-test	Observed Data Minimum	Observed Data Maximum
â	constant	80.4	.9935	80.95	68.0%	96.0%
1	FlyHrs/A cond	-.5507	.1335	-4.13	0	5.6 hrs/acft
2	7R invest	.00004239	.00000516	8.22	$58,285K	$173,453K
3	Cannibalization	-.05469	.01465	-3.73	0	125
4	Cargo (ln)	.2887	.1142	2.53	0	340,000lbs
5	Port days	.017084	.005344	3.20	0	121 days

The following additional measures of fit are provided:

MAPE = 2.86% R^2_{adj} = 25.8%

F test = 29.5 S_e = 3.20

Durbin-Watson = .96

Figure 6-9 shows the 95% confidence interval for the MC model with the actual observed MC rates. Clearly, this is not as robust a forecasting model as that generated for FMC, but, it will provide for some general comparisons between logistic support element effects on MC versus FMC.

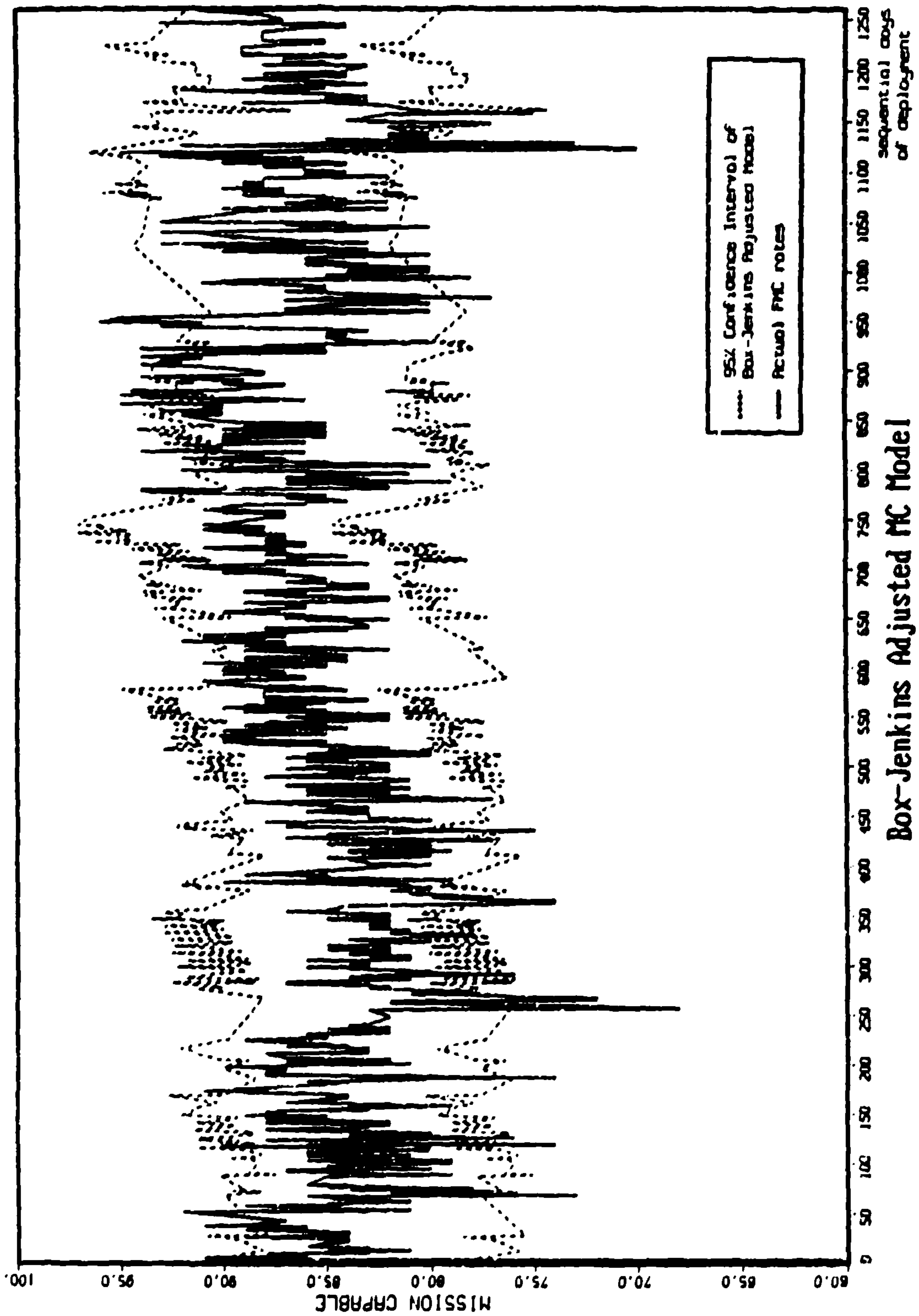

Figure 6-9 Box-Jenkins Adjusted MC Model

VII. FORECASTING MODEL INTERPRETATION

Chapter V discussed the a priori expectations about how readiness is effected by various independent variables. In Chapter VI, quantitative techniques were used to develop plausible mathematical relationships between readiness and those independent variables. This chapter will attempt to reconcile the expected relationships with the results suggested by the regression analysis. The forecasted effect that each independent variable has on FMC and MC is explored. The combined relationship between COD/VOD delivery and 7R cog inventory investment is discussed. And, the possible indirect effect that rotatable pool allowance calculations have on readiness levels is discussed.

A. INTERPRETATION OF INDIVIDUAL VARIABLES

Chapter V discussed the idea that readiness is a function of a series of independent variables which can be grouped into four catagories:

1) the level of demand placed on the logistic support system

2) the ability of the onboard logistic support system to correct or prevent aircraft system failures

3) the ability of the external logistic support system to support the onboard logistic system

4) the inherent reliability and maintainability of the embarked aircraft.

Were these relationships confirmed by the quantitative analysis of Chapter VI? What do the results of Chapter VI mean? How should the forecasting models be interpreted?

Overall, the quantitative results of Chapter VI prove the hypothesis of Chapter V.

Here are some general points to remember about the material in this chapter. The discussion is presented within the framework of variable groups. The discussion will key on individual graphs showing each independent variable's marginal contribution to both FMC and MC. The graphs in this chapter were constructed by holding all but one variable fixed at their mean[1] value and then varying the value of the one independent variable over a selected range. In all cases the Y (vertical) axis represents the marginal change in FMC or MC. The X (horizontal) axis represents the range of the independent variable. The shaded areas along the X and/or Y axis mark the range of the actual observed values of the independent variable being graphed.

Each graph has at least three lines. The center line is a plot of the point estimates of the forecast. The upper and lower lines form the 95% forecast confidence interval. The forecast interval band is not constant. The lines diverge slightly indicating a decrease in the confidence of

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[1]Appendix B contains key statistics for the entire data base.

the point estimate as input values move farther away from the mean of the relevant range.

Four graphs have a fourth, curved line. This line was sketched in by hand to suggest a nonlinear behavior of readiness above and below the range of observed data. These lines are purely a subjective extrapolation of the linear relationships. Statistically, there is no basis for the shape of these lines and relationships should not be predicted beyond the range of observed data. The sketched lines are meant to suggest a more liberal, economic model of the relationships.

1. Level of Demand

Of the six types of data collected as candidate independent variables (Chapter V Section B.2), flying hours and the number of A condition aircraft were the measures which remained statistically significant throughout analysis for inclusion in the forecasting models. They were combined into a single variable by forming the ratio of flying hours per A condition aircraft which was then included in the multiple regression analysis of Chapter VI. Their influence, in the form of the ratio, on readiness was as expected. An increase in the total number of hours flown per day will lead to a decline in readiness while an increase in the number of A condition aircraft will spread those flying hours over a larger base of aircraft resulting in fewer hours flown per aircraft. Hours flown per aircraft

is the input to the aircraft reliability and maintainability equation (see Chapter II model influence diagram) which will generate system failures and demands for repair parts and maintenance.

Figures 7-1 and 7-2 show the marginal change in FMC and MC for changes in the ratio of flying hours per A condition aircraft. The slopes are nearly identical, -.5 for FMC and -.55 for MC, indicating that FMC rates and MC rates are affected about the same by the tempo of flight operations.

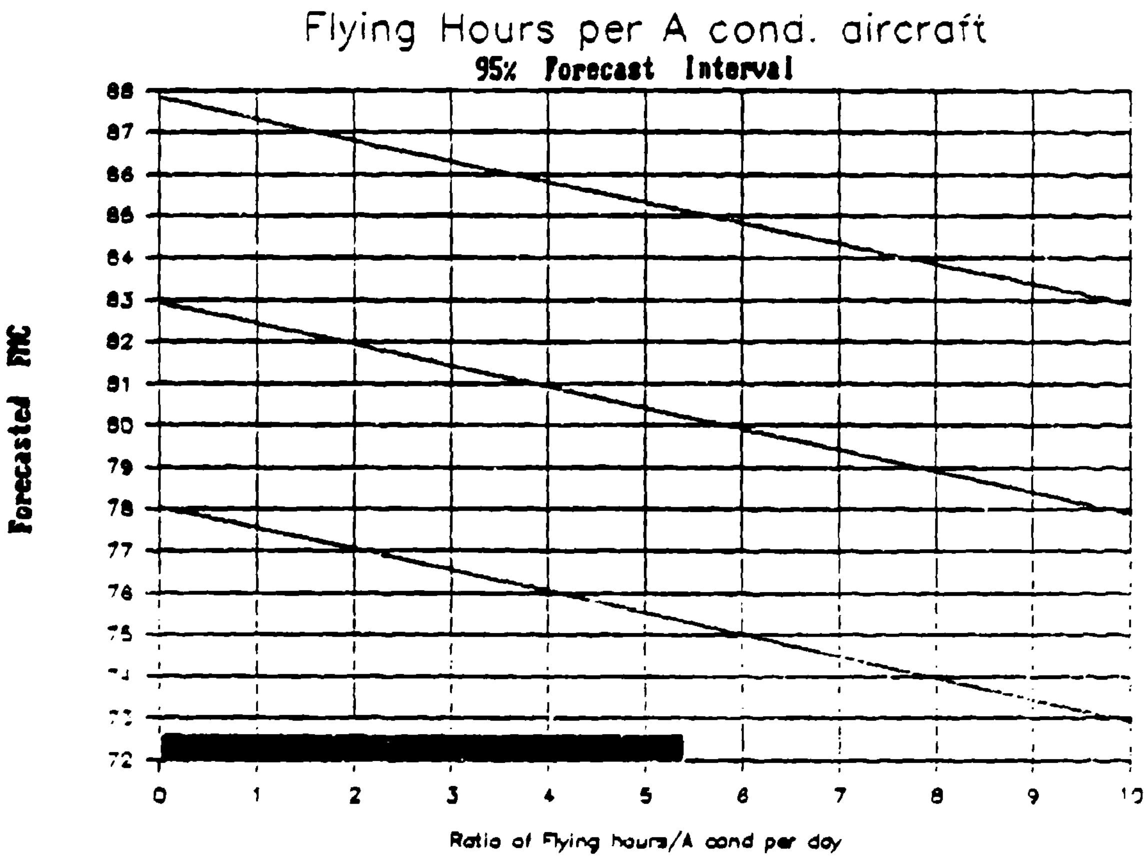

Figure 7-1 Flying Hours per A Cond. Aircraft

The ratios on the X axis may be interpreted as follows. The median number of A condition aircraft in the study was 79, so a ratio value of 3 means that the total number of flying hours for the day was 237.

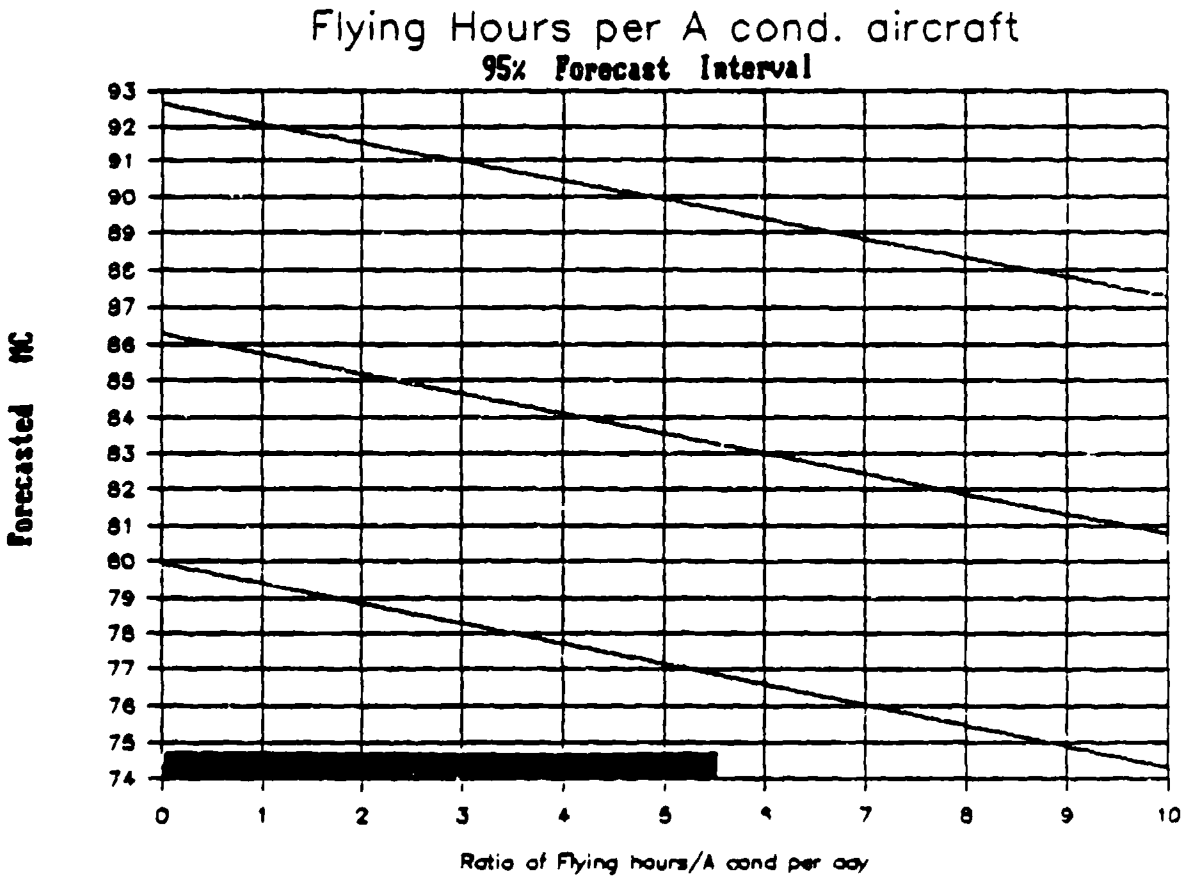

Figure 7-2 Flying Hours per A Cond. Aircraft

In terms of operational application, the number of A condition aircraft is probably not within the control of the Battle Group Commander so the denominator of the ratio of

flying hours to A condition aircraft must be considered a constraint, at least on a daily basis. The number of flying hours scheduled per day, the numerator of the ratio, is however within the control of the Battle Group Commander and is therefore considered a decision variable.

Looking at the graph for MC, Figure 7-2, a change in the ratio of flying hours/A cond. from 0 to the ratio mean of 1.78 may result in a 1% decline in the MC rate. With all other variables in the forecasting model held constant, 10 days of flight operations at a ratio of 1.78 will probably result in a 10% decline in the MC rate, or assuming 79 A condition aircraft, a reduction of 8 in the number of available aircraft (the change from a reported MC rate of 81% to 71%).

2. Onboard Logistic Support

Of the eight candidate independent variables representing measures of onboard logistic support (Chapter V Section B.3), three; 7R cog inventory investment, 1R cog inventory investment and AVCAL gross effectiveness were included in the final FMC forecasting model. The 7R cog inventory investment and cannibalization actions per day were the independent variables used in the final MC forecasting model.

The carrier deployment data showed the expected relationship between 7R cog inventory investment and readiness. An increase in the dollar value of inventory

investment resulted in an increase in both readiness rates.[2] With a slope of .00004239, MC appears to be slightly more sensitive to changes in 7R investment than is FMC, with a slope of .00002941.[3] The 7R variable is recorded in thousands of dollars, so a $10 million increase in inventory will probably increase FMC by .4% and MC by .3%[4]. As another example, it might require an additional investment of $170 million to increase FMC rates by 5%. Figures 7-3 and 7-4 show the marginal change in FMC and MC for changes in the 7R inventory investment.

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[2]While conducting simulations in support of conclusions for Chapter VIII, an additional relationship between 7R inventory levels and readiness was suggested. Unlike 1R inventory, 7R inventory investment is not decreased until a component is found to be beyond the repair capability (BCM) of AIMD. Thus all RFI assets in supply stock could be "consumed" by aircraft maintenance activity without a corresponding decrease in 7R investment levels. During a scenario in which external stock replenishment of BCM'd components is cut-off, a declining balance of 7R inventory represents the removal of carcasses from the onboard repair cycle. Therefore 7R investment levels represent much more a measure of support capacity than does 1R investment which tends to measure repair activity, see footnote #8 of this chapter.

[3]They may actually be much closer depending on the subjective decision to include or exclude the variable "date index" in the MC forecasting model. See footnote 14 of this chapter.

[4]The relevant range of linear approximation for 7R investment is $58 million to $173 million.

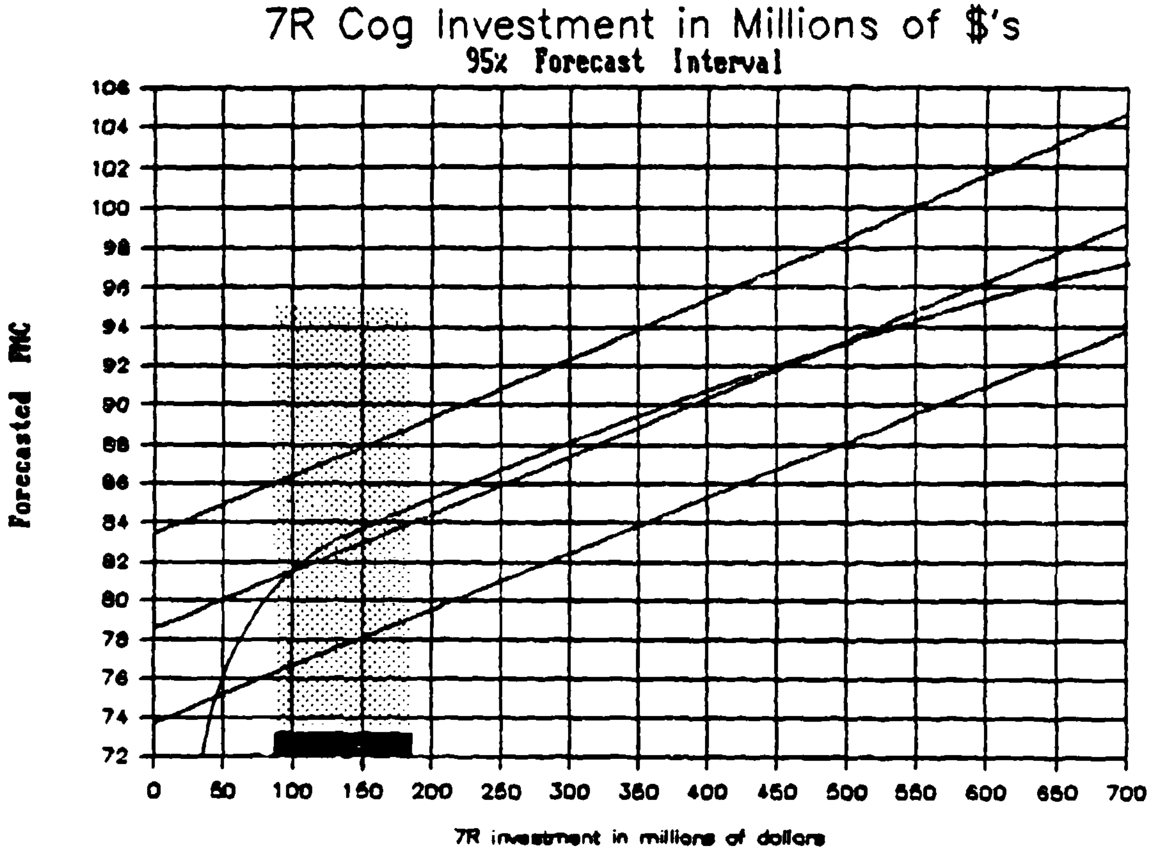

Figure 7-3 7R Cog Investment in Millions of $'s

The 7R investment plots each have a fourth curve sketched in by hand. The regression process created a linear equation which approximates the relationship between the independent and dependent variables over the range of observed data. This linear approximation is obviously limited. Readiness cannot be extended beyond 100% and readiness is unlikely to remain in the vicinity of 80% as inventory levels approach zero. Thus the curved plot rises

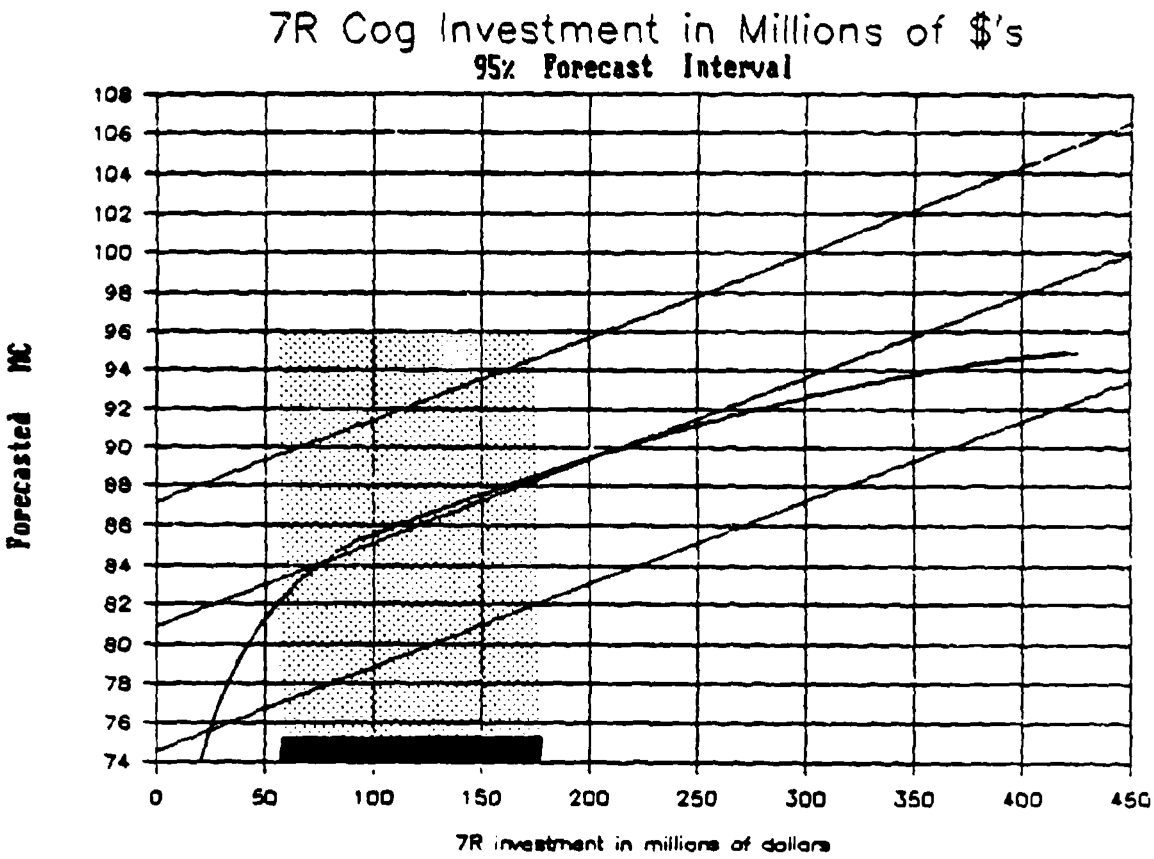

Figure 7-4 7R Cog Investment in Millions of $'s

rapidly from some unknown Y intercept, becomes somewhat parallel to the linear plot over the relevant range of data and then curves to approach a horizontal asymptote.[5]

[5]It is highly unlikely that increasing any single independent variable will result in the achievement of 100% aircraft readiness. Additionally, there is no empirical evidence to suggest what the maximum achievable readiness might be given infinite inventory investment. Therefore, it is impossible to estimate the readiness level at which the non-linear plot will become asymptotic. The non-linear plot

The curved plot strongly suggests that the largest marginal changes in FMC per dollar of inventory occur in the $0-$100 million dollar range. If inventory data for years prior to 1983 were available, it might quantitatively confirm that one of the reasons for the big improvements in carrier readiness between 1981 and 1986[6] was the increased funding of aviation repairable inventories.

In terms of application, the 7R inventory investment[7] is really a function of a number of other variables. The maximum dollar value which could be expected on board would occur if 100% of the AVCAL allowances were in stock. The AVCAL allowances represent negotiated quantities, most of which can be considered fixed over the time period of a deployment, thus they are a fixed parameter. The percentage of AVCAL on hand at any point in time depends on the availability of the items in the wholesale supply system,

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is subjective. It is one possible shape of the curve representing the actual relationship between readiness and inventory investment.

[6]U.S. House of Representatives Committee on Armed Services, Defense Department Authorization and Oversight Hearings on H.R. 4428, Department of Defense Authorization of Appropriations for Fiscal Year 1987, February 5, 6, and 7 1986, Government Printing Office, Washington, DC, 1986, pp. 78-81.

[7]Inventory levels recorded in the data base were taken from the financial inventory reports. The dollar value represents the extension of unit price times quantity on hand. The component may or may not be ready for issue. The ship's inventory balance is not reduced until the component has failed repair in AIMD.

the ship's inventory management effectiveness, and the success of the transportation system (including COD/VOD) in delivering stock replenishment requisitions to the ship (an example of the simultaneous nature of the modeling problem).

There are three factors influencing 7R investment that can be considered decision variables during a deployment: shipboard inventory management, cargo routing, and cargo delivery to the ship. The AVCAL quantities are decision variables controlled by the type commander and inventory control point.

1R inventory investment was included in the FMC model only. It was checked to see if it could be used in the MC model, but the slope was found to be negative. A negative slope implies that readiness will decrease as 1R investment is increased which is not logical.[8] Figure 7-5 shows the marginal change in FMC for changes in 1R cog investment, in millions of dollars. The polynomial function representing 1R seemed logical until the plot was examined in relation to the range of the data.

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[8]In retrospect, it may have been appropriate to retain 1R investment in the model even with a negative slope. When simulating daily changes in readiness, it is plausible to regard the consumption (and therefore decline in 1R investment) of 1R material as having a positive affect on readiness. For example, if an aircraft is not mission capable for a 1R item and that item is issued from stock, then the 1R inventory level will decrease while the MC rate increases. This line of logic becomes more powerful when applied to a scenario where stock replenishment has been cut-off and MC/FMC rates are being maintained through the consumption of onboard inventory.

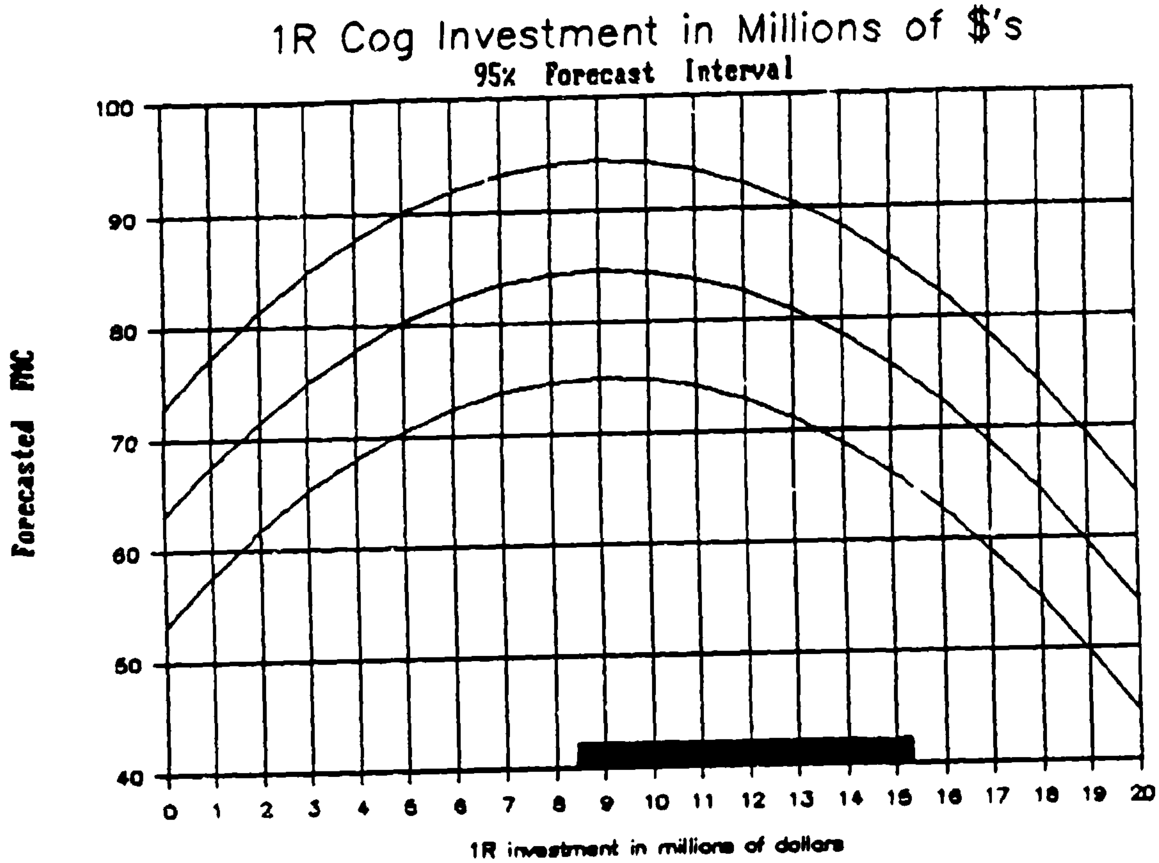

Figure 7-5 1R Cog Investment in Millions of $'s

Strictly interpreted, the graph suggests that readiness levels first increase, then are reduced by increasing levels of investment in 1R cog invertory. This is extremely difficult to reconcile logically. 1R investment levels did in fact increase in an almost straight line (slope of .00545 millions of dollars per day or about $900,00 increase per deployment) from the beginning of 1983 to the end of 1986.

Three possible explanations for the negative correlation between 1R inventory investment and FMC rate are suggested. One, although 1R investment has increased, the increases have been used to stock the wrong material. Two, 1R material is used on a daily basis to repair aircraft; therefore, a declining balance in 1R inventory may correspond with increases in readiness brought about by the usage of the 1R material. Three, the regression analysis incorrectly attributed negative movement in FMC with the 1R variable.

AVCAL gross effectiveness was only included in the FMC model. The effect on FMC rate was as expected. For a change of 5 percentage points in AVCAL gross effectiveness, say from 75% to 80%, FMC would probably increase .3%. Figure 7-6 is the graph of this relationship. FMC's apparent insensitivity to changes in AVCAL gross effectiveness (and the inability to include this variable in the MC model) is, in the author's opinion, due in large part to the fact that AVCAL effectiveness is reported only monthly. The aggregation of data for monthly reporting, such as AVCAL gross effectiveness,[9] limits the explanatory power of these variables in an application where the dependent variable is measured on a shorter time frame. It is felt that significantly better statistical relationships could be constructed if AVCAL performance measures were calculated and recorded daily.

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[9] Chapter IV identifies the reporting period for all data.

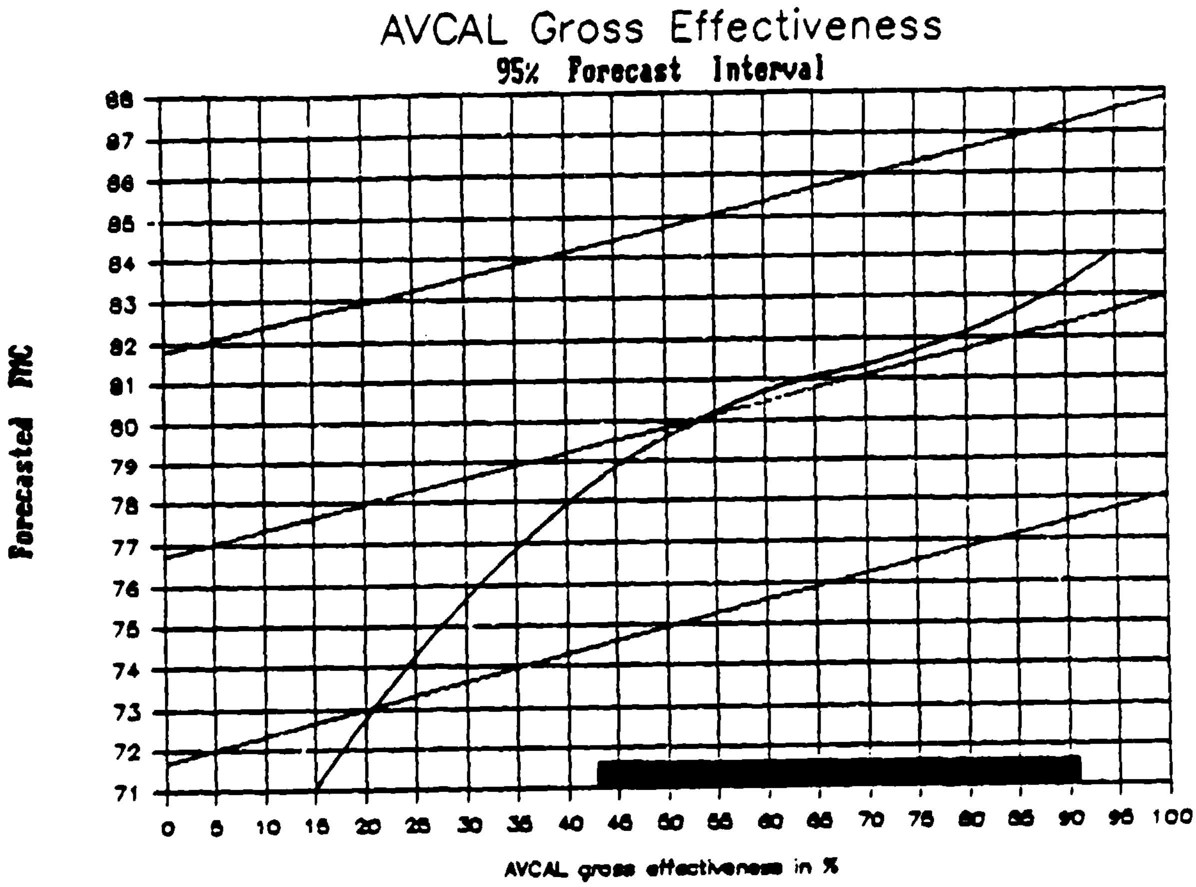

Figure 7-6 AVCAL Gross Effectiveness

AVCAL gross effectiveness is another variable with simultaneous relationships to other subsystems of the logistic support system. More effectiveness is better, but the author does not feel the relationship is strong enough

to suggest resource trade-offs or level of effort to reach a specific goal.[10]

A fourth, non-linear, curve has been added by hand to Figure 7-6. The fourth curve was added subjectively to suggest what the actual behavior of the relationship between AVCAL gross effectiveness and FMC might be above and below the range of observed data. Because both effectiveness and FMC are expressed in terms of percentages, it is impossible for either the X or Y values of this graph to exceed 100. It is possible for AVCAL gross effectiveness to reach 100%[11], it is equally possible for FMC to reach 100%, however, it is unlikely that an AVCAL gross effectiveness rate of 100% alone would cause FMC to reach 100%. Conversely, FMC is not so dependent on AVCAL gross effectiveness as to force FMC to 0% if AVCAL gross effectiveness where to fall to 0%. There is no empirical data within this study to suggest what these upper and lower boundary intercepts might be, therefore, the exact shape of

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[10]Monthly AVCAL gross effectiveness is a highly aggregated measure of the supply department's ability to satisfy demands for parts. Although the statistical analysis of Chapter VI allows some assertions to be made about AVCAL gross effectiveness's effect on readiness, the correlational analysis would be better if AVCAL gross effectiveness was available on a daily basis.

[11]It is unlikely that average monthly AVCAL effectiveness would reach 100%, but, if effectiveness was calculated and reported daily, it is conceivable that there would be some days when of all requisitions were filled onboard.

the fourth curve, as it approaches its upper and lower bounds, is left to the speculation of the reader.

The variable of cannibalization actions per day was included only in the MC forecasting model. The effect on MC was almost as expected. An increase in cannibalization actions degrades the MC rate. However, there are three interpretations that could be applied to this negative correlation. First, the frequent removal and replacement of RFI components increases the frequency of failures related to such handling. Second, a higher rate of cannibalization reflects an inadequacy in the material support provided to the flight deck maintenance personnel, i.e., it takes too long to get replacement parts to the flight deck. Thirdly, cannibalization actions increase in an attempt to limit already declining readiness which is being caused by other factors, i.e., cannibalization may be an outcome of declining readiness rather than a cause of it.

Figure 7-7 suggests that 40 cannibalization actions per day may result in a 2% decline in MC rate. With all other variables held constant, ten days of cannibalizing at a rate of 40 per day might lead to a 20% reduction in MC rate. For a carrier starting out with 80 A condition aircraft, this translates into the unavailability of 16 aircraft. This statistic alone is a little unbelievable and suggests that the cause and effect relationships surrounding the activity of cannibalization deserve closer scrutiny.

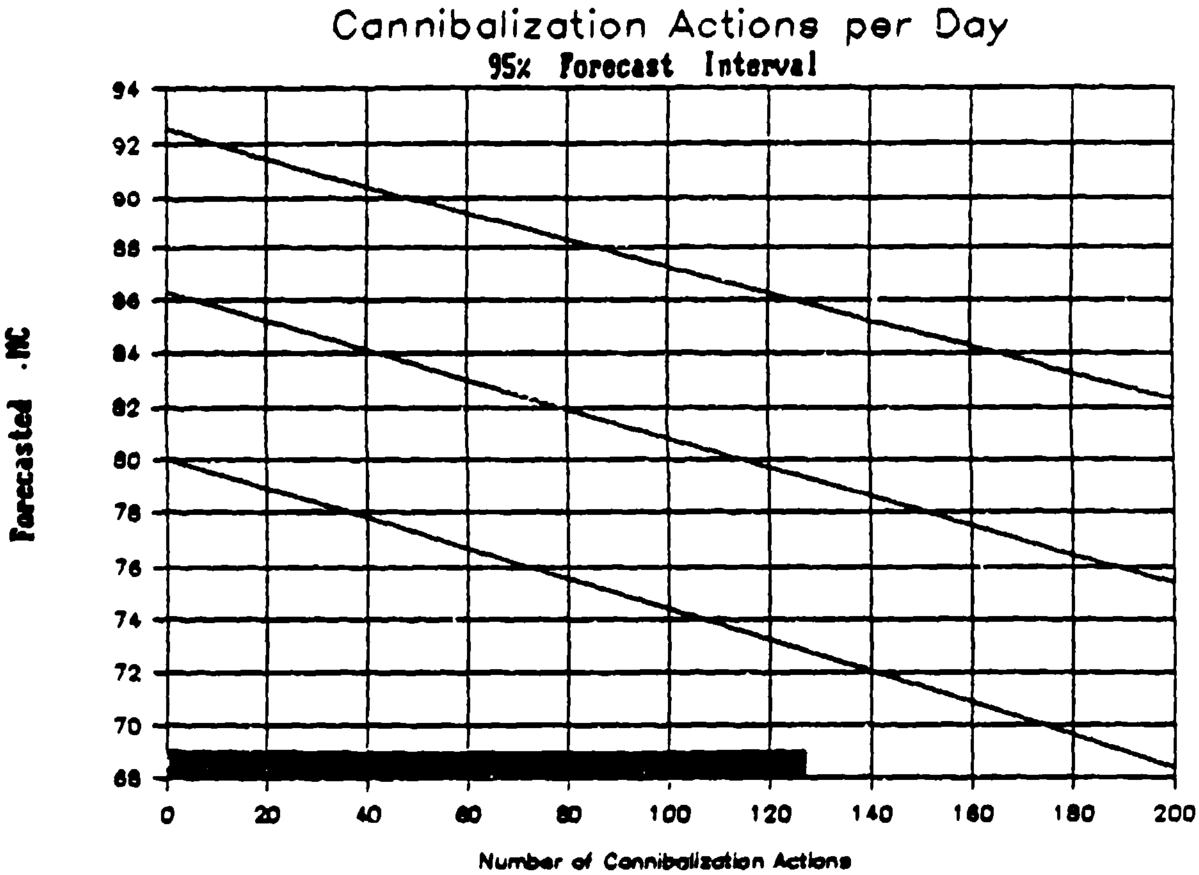

Figure 7-7 Cannibalization Actions per Day

The different interpretations that can be applied to cannibalization's relationship to readiness raises the question as to whether cannibalization should be considered the independent or dependent variable. The extraordinarily large change in MC rate over a 10 day period forecasted by the model suggests that cannibalization may be an unreliable predictor of readiness. It is possible that cannibalization

actions should be discarded from any causal analysis of readiness.

3. External Logistic Support

There were four candidate independent variables representing measures of external logistic support proposed in Chapter V, Section B.4. Of these, days since last COD/VOD and days since last inport period were included in the FMC forecasting model. Cargo weight and days since last inport period were included in the MC forecasting model.

A time variable consisting of a sequential series of numbers (13-1094) was constructed and used in the FMC model only. As was discussed in Chapter VI, Section A.5, there were long term trends observed in both FMC and MC. The removal of the trend from the dependent variables prevented the measurement of the effects that trends in the independent variables had on the dependent variables. The time variable was meant to capture the effects of unknown variables which may have contributed to the long term upward trend in FMC rates. This also reduced the chances that the independent variables used in the model would get credit for influences on FMC that they did not deserve.

COD/VOD has received a good deal of attention throughout the thesis. It is the subject of the primary thesis question. It was gratifying to find that the COD/VOD variable could be retained in at least the FMC model.

The effect of COD/VOD delivery is that for each day that passes without the receipt of a COD/VOD, FMC may decline an average of .37 percentage points. After 30 days this might mean a decline of 11.1% in reported FMC.

An interruption in the delivery of material to the carrier via COD/VOD will have other indirect effects on readiness. Chapters II and VI discuss many of these relationships. The important point is that each of them is affected negatively by the interruption in the flow of material from the COD/VOD.

Figure 7-8 shows the graph of the marginal change in FMC for consecutive days since the last COD/VOD was received. The plot is carried out to 50 days, which is substantially beyond the relevant range of data. However, judgement can be applied to corroborate the plot behavior. There is no reason to believe that FMC will suddenly start to improve if the COD/VOD delivery is delayed long enough. It is more likely that FMC rates will begin to decline, perhaps more sharply, as some of the indirect effects of COD/VOD delivery interruption (which are not modeled here) begin to take effect.

In Chapter V, Section B.1, the author proposed a pattern of readiness decay in the event that COD/VOD deliveries were interrupted. Figure 7-9 shows the original qualitatively determined decay pattern versus the pattern calculated through regression analysis. The fit over the

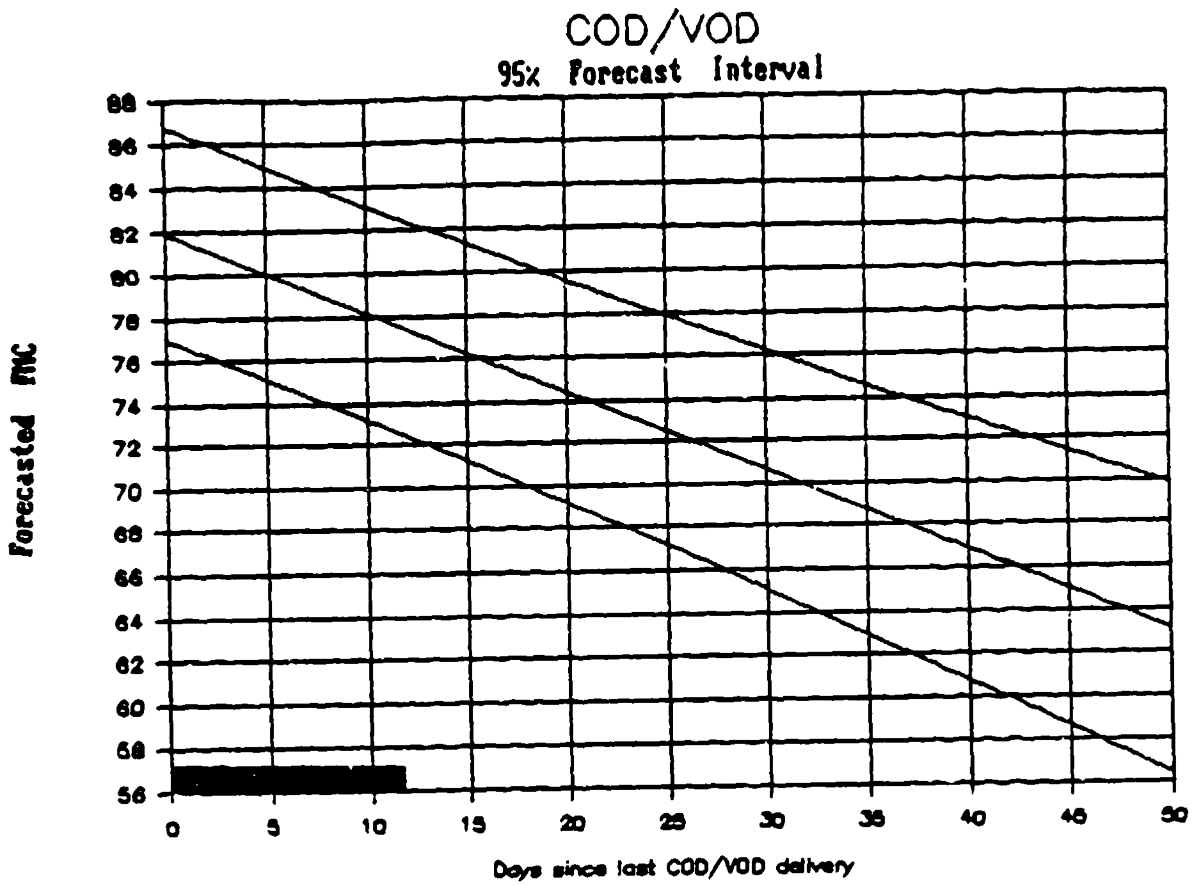

Figure 7-8 COD/VOD

first 20 days is excellent. The disparity between day 20 and 45 will be discussed in Section C of this chapter.

The COD/VOD variable could not be retained in the MC model even though a second order polynomial relationship proved statistically significant in the individual regression analysis. The failure of the COD/VOD variable to remain statistically significant in the multiple regression is important. This suggests that MC rates are not as

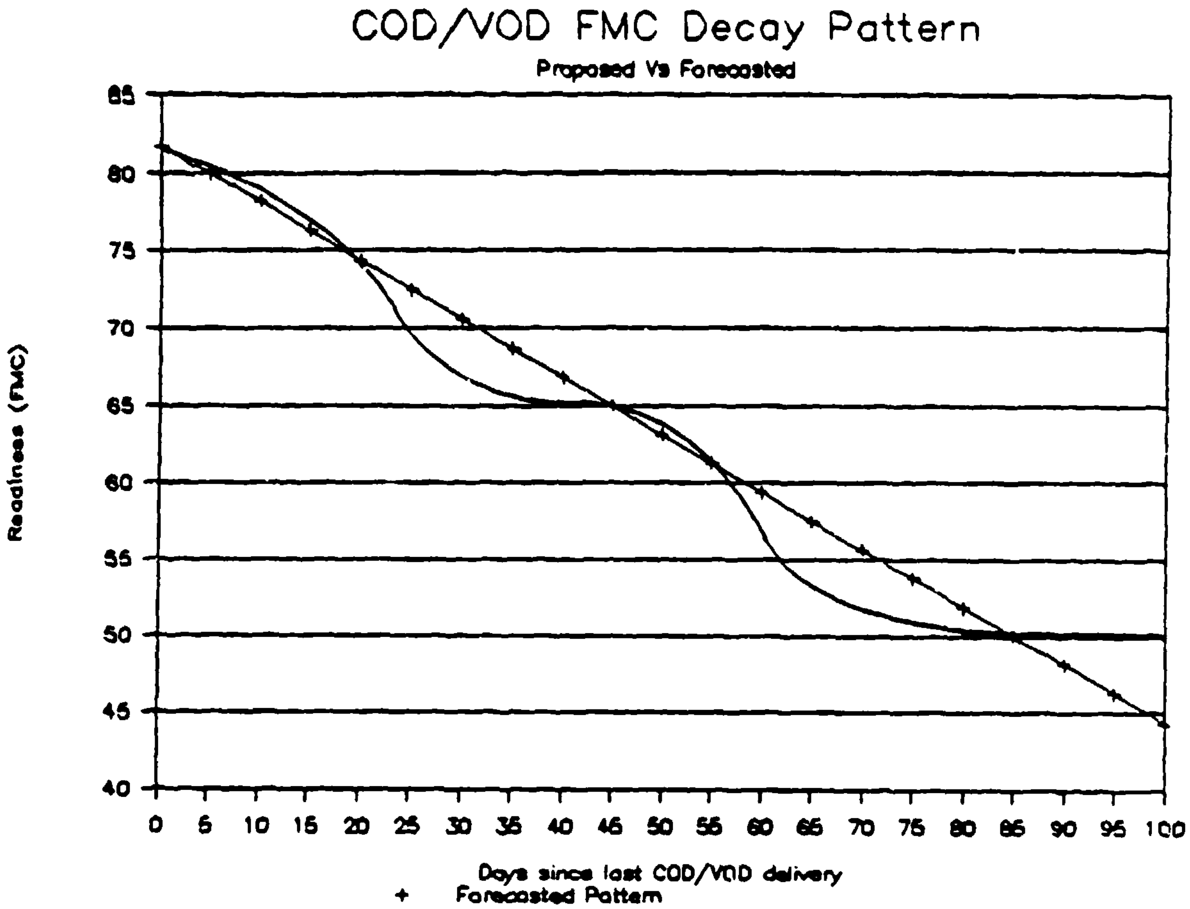

Figure 7-9 COD/VOD FMC Decay Pattern

sensitive to the continuous delivery of parts via COD/VOD as are FMC rates. Why might this be the case? If one component of a subsystem of an FMC aircraft fails, that aircraft may no longer be an FMC aircraft but may still be an MC aircraft. In fact an MC aircraft can have several outstanding FMC degrading maintenance requirements outstanding at any one time. Thus the frequency of FMC

related maintenance requirements and the daily total of outstanding FMC requirements will be much higher than those that place the aircraft in a not mission capable status. There is a greater volume of FMC requisitions flowing through the external logistic pipeline than MC requisitions. A break in that pipeline will, therefore, have a more immediate effect on FMC requisitions than on the lower volume of MC requisitions. Additionally, both organizational and intermediate maintenance activities are more likely to cannibalize an asset in order to resolve an MC related maintenance requirement than they are to resolve an FMC related requirement.

The MC model is not, however, without any measure of the external logistic support system. Unlike the FMC model, the weight of daily cargo receipts was statistically significant. Figure 7-10 shows the graph of this relationship. With MC, its not so much that readiness will go down for every day that passes without a COD/VOD delivery but rather, when the cargo arrives readiness will go up as a function of the weight of the cargo received.

Figure 7-10 requires a little math to interpret. The horizontal axis representing cargo weight in pounds has been scaled with the natural log function (ln or $\log_e$). A 1% increase in MC rate may result if 33 pounds ($e^{3.5}$) of material is received. A 3% increase in MC rate may be achieved if 36,500 pounds ($e^{10.5}$) of material is received.

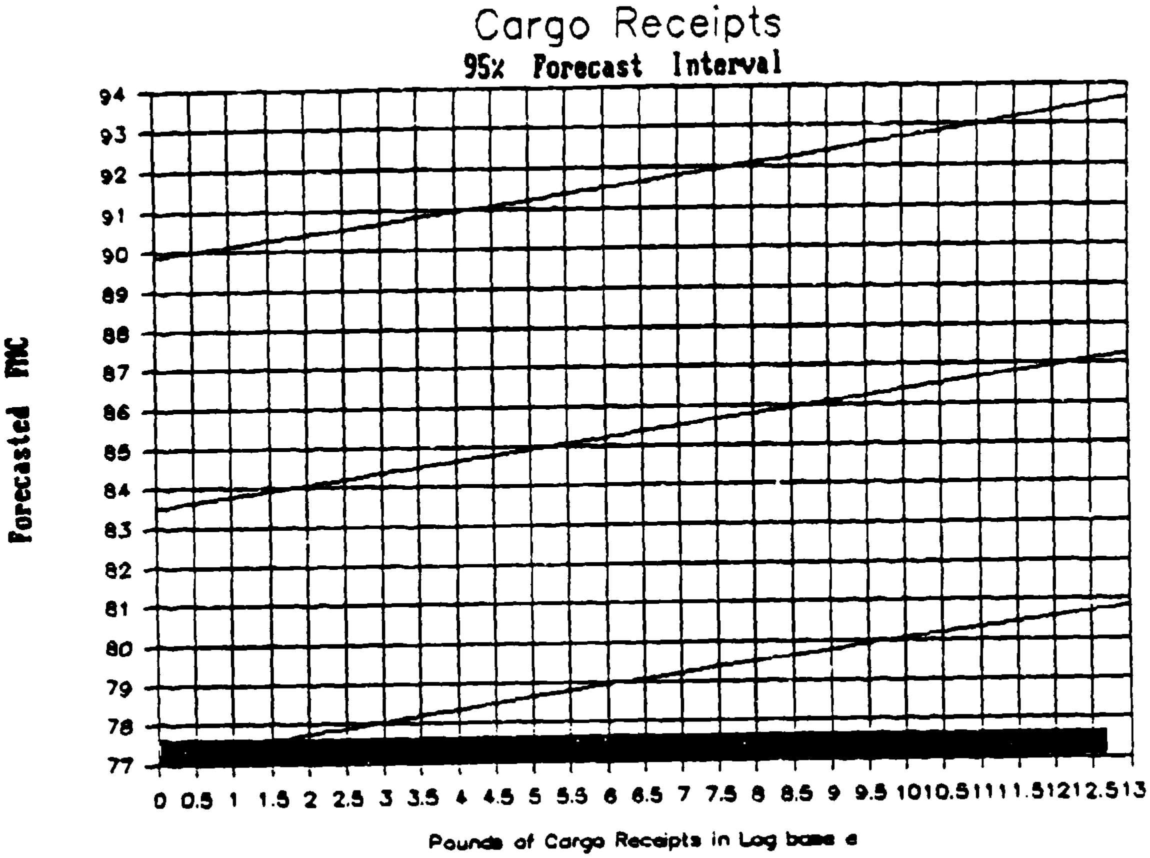

Figure 7-10 Cargo Receipts

This suggests that we deliver a lot of material to a carrier that has, at least by weight, little direct affect of daily MC rates, although it probably has significant indirect effects through the replenishment of support capacity. It may also be the case that given the present frequency of COD/VOD deliveries to the carrier, all MC related requirements (Not Mission Capable requisitions) are flowing through to the ship efficiently. Thus the observations

involving large cargo weights do not contain significant quantities of MC requisitions which have been backlogged in the transportation or supply system.

The marginal change in FMC caused by increases in the time at sea since the last working port visit is shown in Figure 7-11. The relationship seems logical up to about the 120 day point. The graph suggests that for the first 20 days after leaving port readiness will decline slightly. The reader might think that readiness should be going immediately up after leaving port because of the receipt of large quantities of DTO and stock replenishment material. However, as the ship gets within 2-3 days of arriving in port, an effort is usually made to increase reported readiness because once the ship arrives in port, the focus will not be on maintaining aircraft.[12] There will be flight operations while inport and maintenance will be performed, however, the normal supply/AIMD repair cycle will be operating at reduced capacity due to normal inport liberty hours and perhaps the reduced availability of electricity. This reduced AIMD/supply efficiency causes rotatable pool RFI balances to decline.

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[12]There is an opportunity for reporting artificially high readiness levels because it is unlikely that all FMC aircraft will be required to actually fly while inport. The incentive to generate such higher readiness levels, reported on the last day prior to entering port (a readiness report is submitted only weekly while inport), is that they become the daily levels used to calculate monthly readiness averages. The monthly averages are used to measure squadron, supply and AIMD performance.

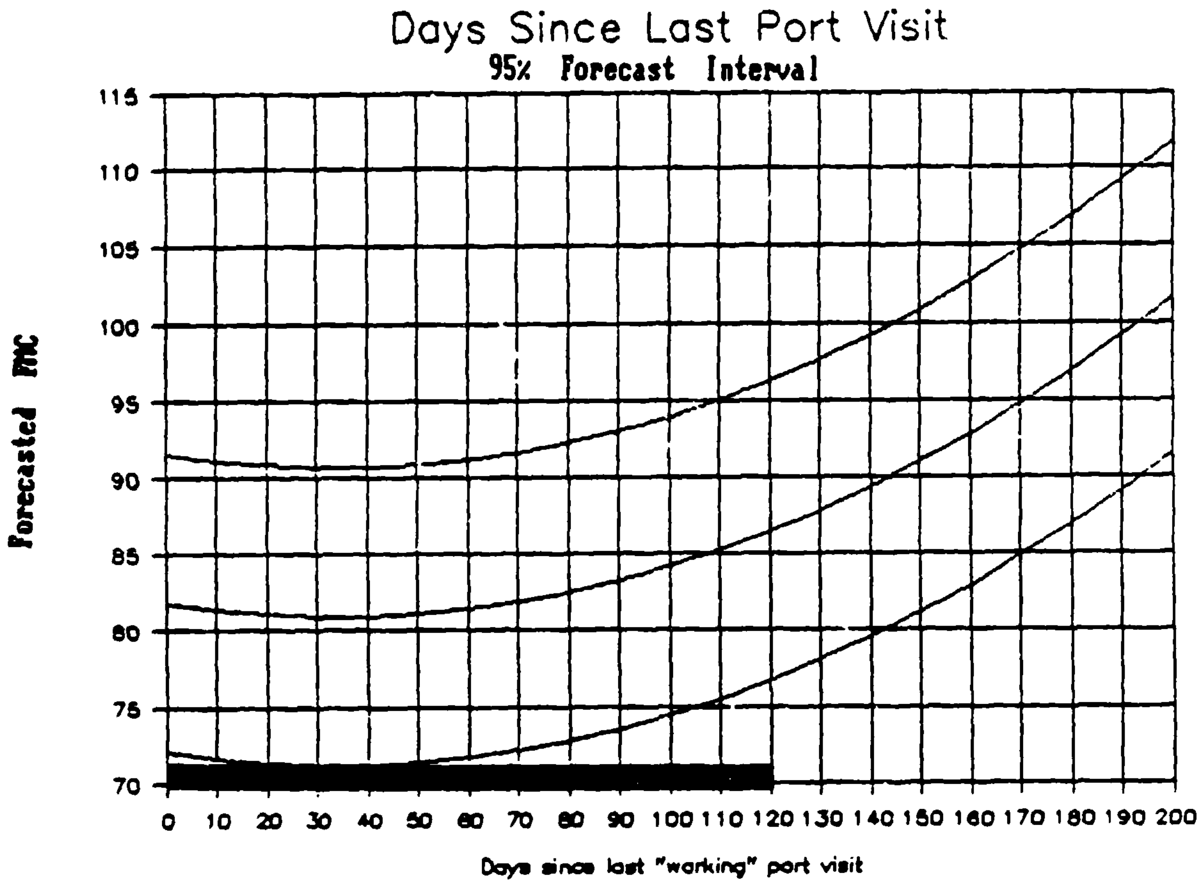

Figure 7-11 Days Since Last Port Visit

When in port, the supply department will load large quantities of stock replenishment material which will probably not be stored and recorded on the inventory records while inport.

The awaiting parts section of supply will receive a large quantity of parts for components awaiting repair thus

creating a backlog of work in the intermediate maintenance cycle.

When the ship gets underway there is a certain amount of reacclimation to daily routine. Aircraft maintenance that was not performed on the aircraft that flew from the shore airfield must now be completed and aircraft that where FMC when the ship came into port may now need work, so there is an increased demand on the organizational maintenance divisions.

The AIMD has a backlog of repair actions from components not repaired inport and from components ready to come out of awaiting parts status. The supply department is busy stowing material and posting the stowage actions to the inventory records. Thus although the support capacity replenishment was received while inport, it will be several days before AVCAL issue effectiveness will move upward.

Should all this keep readiness moving down for 30 days? No. And, neither is readiness expected to continue upward indefinitely after 30 days.

The cubic polynomial transformation used during the individual regression analysis, Chapter VI, Section B.3, yields a more logical pattern. Figure 7-12 shows the individual variable regression equation plot. The downward trend lasts only 20 days. The upward trend lasts until day 120 then turns sharply downward. Because this downturn takes place outside the range of observed data, it may not

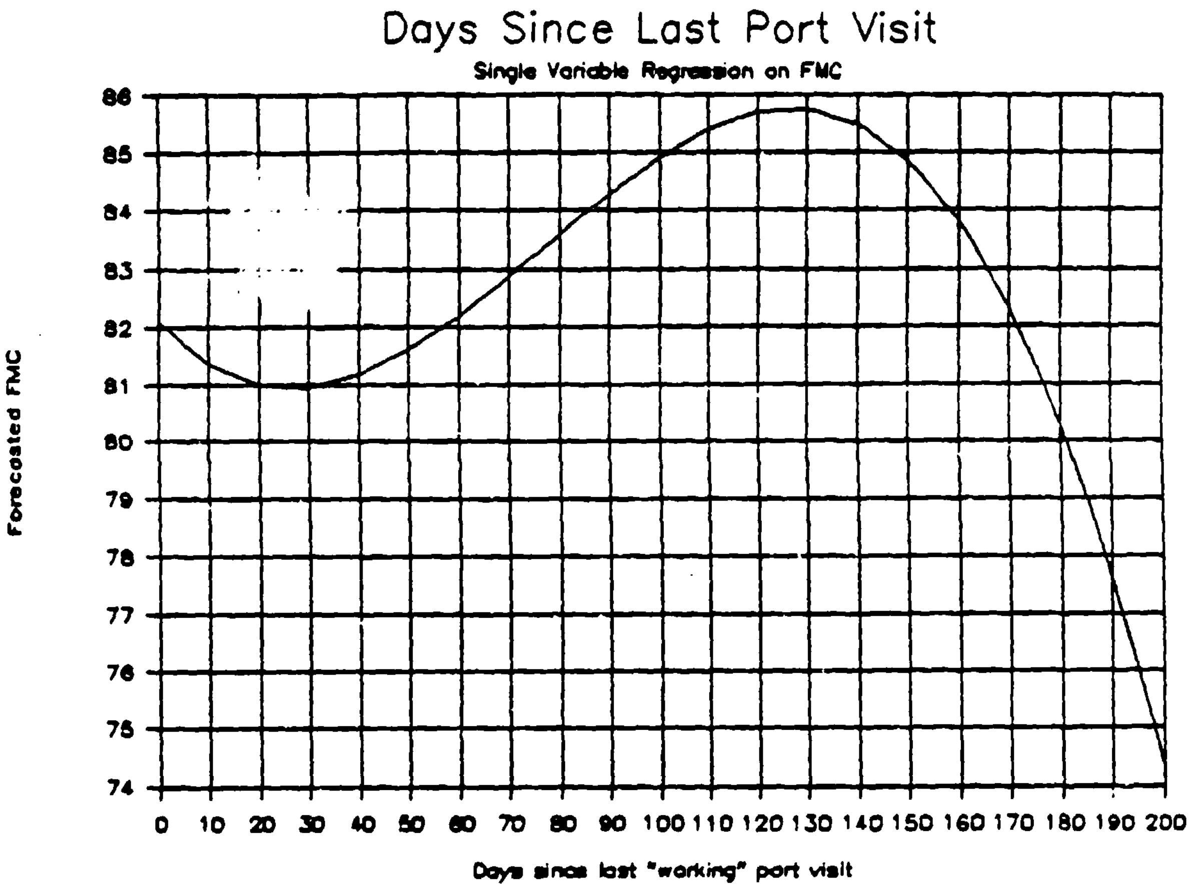

Figure 7-12 Days Since Last Port Visit

be accurate. However, logic indicates that there will come a point sometime after 45 days when supply support effectiveness will start to decline (assuming that external logistic support has been cut-off) as inventory levels become depleted.

Days since last port visit was also included in the MC forecasting model. Only a single, first order term for days since last port visit was statistically significant in

the multiple regression equation. Squared and cubed terms failed the t-test. The remaining linear relationship is shown in Figure 7-13. This is another case which demonstrates that MC rates are relatively (compared to FMC) less sensitive to changes in the explanatory variables examined.

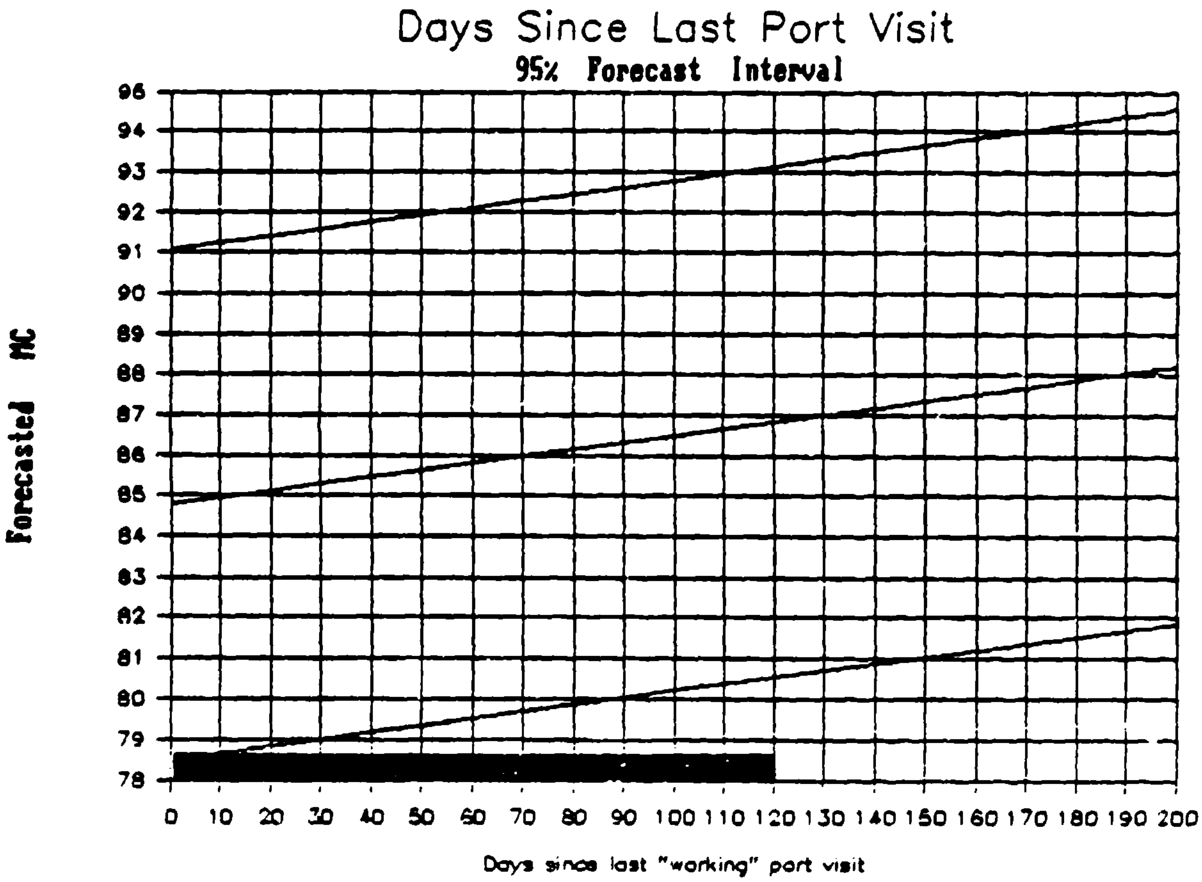

Figure 7-13 Days Since Last Port Visit

The plot pattern of Figure 7-13 suggests that the longer the carrier stays at sea the better MC rates will become. There are two assertions that can be made to explain this. First, given what is known about the actual frequency of COD/VOD it is probable that external logistic support actually gets better the longer a carrier stays at sea[13]. Thus, the upward trend may be due to improving external logistic support. Secondly, when the carrier spends longer periods of time at sea, performing essentially the same mission, people will become more efficient in the performance of their jobs. Thus, the upward trend may represent a learning curve phenomenon.

The final variable to be discussed is the date index or long term trend, Figure 7-14. Early in the analysis process it was determined that both MC and FMC have displayed a long term upward trend over time. It was also found that removing the trend from the dependent variables (FMC and MC) caused almost all of the independent variables to lose their explanatory power. This indicated that at least part of the FMC long term trend was caused by long term trends in the independent variables. It should also be understood that the variables included in the model in no

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[13]This statement assumes that long periods of time at sea are more likely to be spent in a specific mission area rather than in transit. If a carrier battle group remains in one general geographic area for a long period of time, the transportation system will become more efficient in delivering material to the carrier.

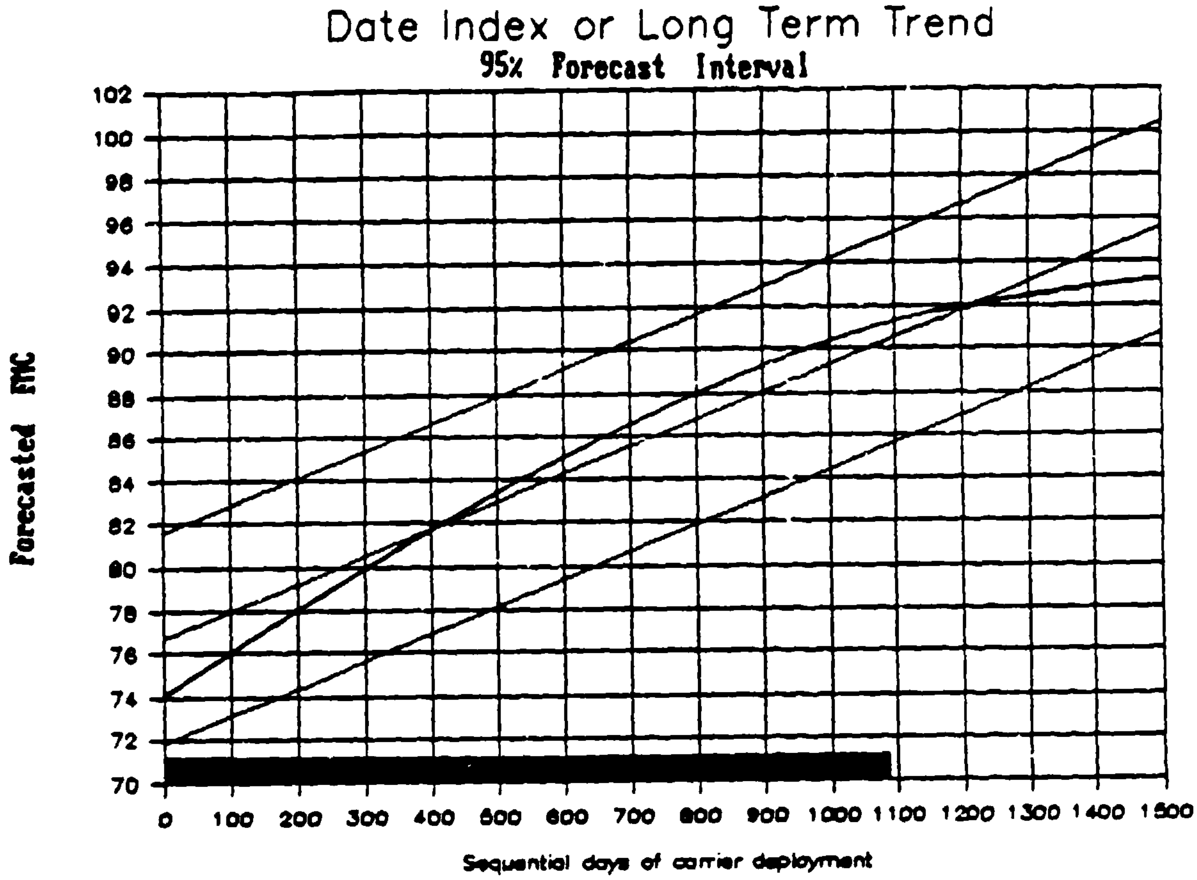

Figure 7-14 Date Index or Long Term Trend

way represent all of the variables that effect readiness and that some long term trend may also be attributable to those other unknown independent variables. Thus the date index was included in the FMC forecasting model to absorb the effect of those other unknown variables.[14]

[14]The date index could have been included in the final MC forecasting model. Its coefficient of partial regression was very small (.0037 in MC model compared to .0125 in FMC model). Its inclusion would have reduced the value of the 7R coefficient of partial regression to .00001941 vise present .00004239. It added only 2.2% to adjusted R^2. The exclusion of the date index from the MC model may overstate the effect 7R investment actually has on readiness.

B. A MICROECONOMIC INTERPRETATION OF 7R INVESTMENT AND COD/VOD DELIVERY

Looking back at Figure 7-3, which shows the plot of marginal change in FMC for changes in 7R cog inventory investment, it should be noted that the linear plot resulting from the regression analysis does not correctly forecast the probable relationship between inventory investment and FMC rates at the extreme values of FMC. The hand sketched curved line was given as a qualitative estimation of the true relationship.

That hand sketched curve has been translated into a mathematical equation[15] and is shown in Figure 7-15. Note that the axis has been rotated so that forecasted FMC is read across the bottom and 7R inventory investment up the side. The straight line is the linear relationship from the FMC forecasting model. The shaded areas along the vertical and horizontal axis are the ranges of actual observations. While the exact shape of the calculated curve is not quite as close to the linear plot over the relevant range as the author would have liked, the approximation will suffice for the purposes of discussion.

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[15]The formula constructed is $Y = |.1/(.1-(X+5)^{-.5})| * 10$ where Y = 7R investment in thousands of dollars and X = FMC in %. Note this formula assumes that readiness cannot be improved beyond 95% by the addition of more inventory, see footnote 5 of this chapter.

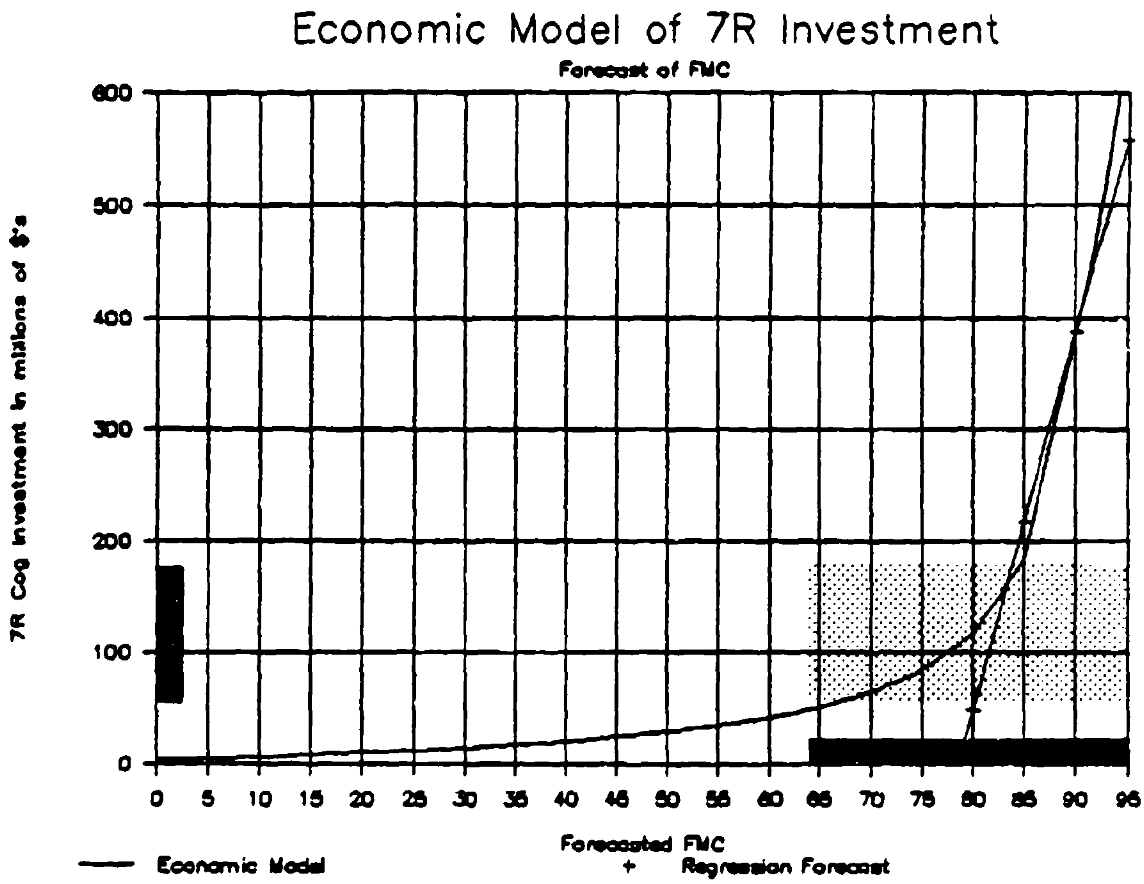

Figure 7-15 Economic Model of 7R Investment

The new non-linear or "economic" plot of Figure 7-15 suggests more clearly that there are decreasing returns to scale when seeking to increase readiness by increasing the level of investment in inventory. In fact, observed inventory levels lie in the knee of the curve. This suggests that most of the gains in readiness that can be achieved by increasing 7R investment levels without expending large sums of money have already been obtained.

Another example of the use of the FMC forecasting model is to compare different combinations of variables. In microeconomics, a curve showing different combinations of two inputs which can be used to produce a specific level of output is called an isoquant.[16] In Figure 7-16 the non-linear equation for 7R investment has been used in combination with the linear equation for COD/VOD delivery to produce six "iso-readiness" lines. Each iso-readiness line represents the value of inventory investment and days since last COD/VOD delivery required to maintain a specific level of FMC.

The iso-readiness plot can be used to answer a question such as: How much 7R inventory would be required to achieve an 80% FMC rate if the average number of days between COD/VOD deliveries is expected to increase from one per day to one every 8 days? By following the 80% curve down to 1 day on the horizontal axis, an inventory level of about $120 million dollars is specified. Moving up the 80% curve to 8 days, an inventory investment of $180 million is suggested, or an increase of $60 million dollars. This sort of analysis suggest a time/resource tradeoff. There is a cost of increased inventory investment associated with a reduction in the frequency of COD/VOD material deliveries while holding readiness constant. With the addition

[16]Truett, L.J. and Truett, D.B., Managerial Economics, second edition, South-Western Publishing Co., 1984, p. 65.

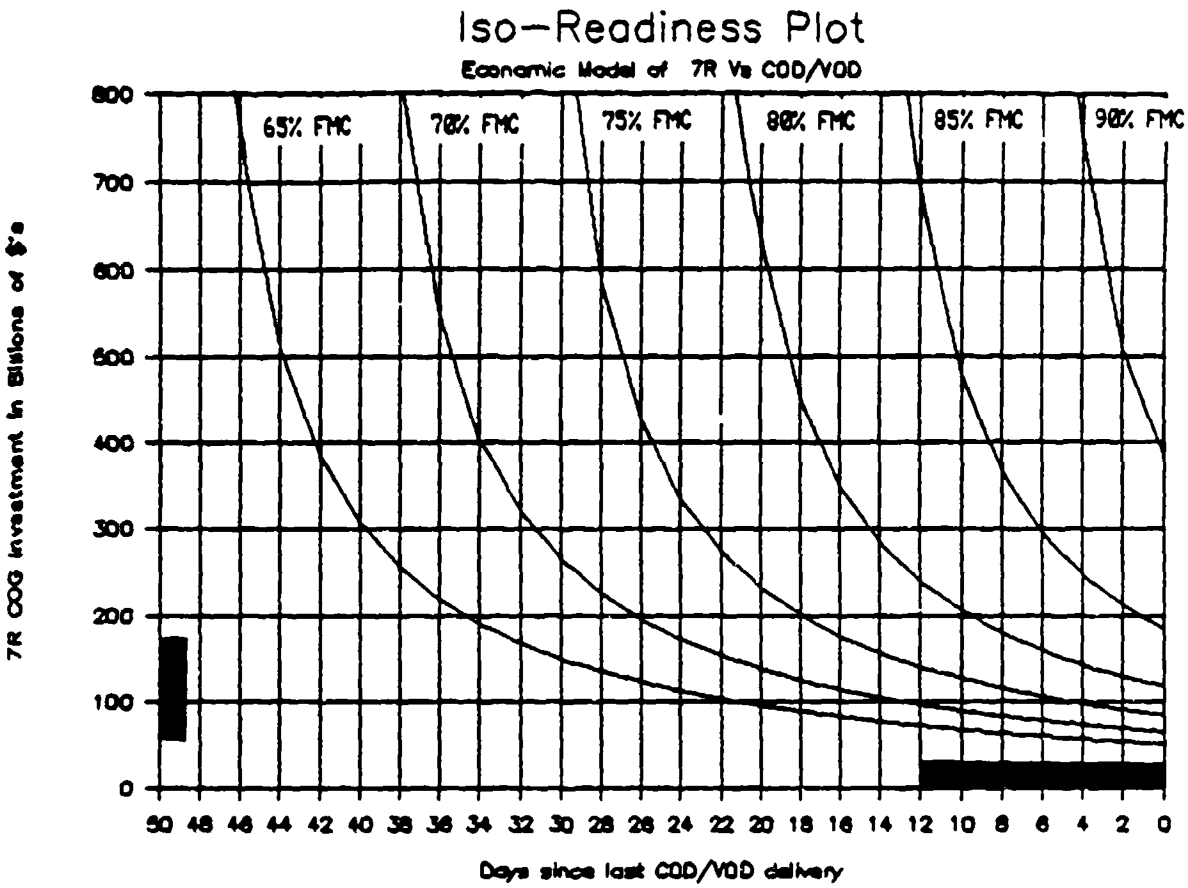

Figure 7-16 Iso-Readiness Plot

information of dollar cost per day of COD/VOD delivery, a least cost combination of inventory investment and COD/VOD utilization could be determined.

Another question which could be answered using the iso-readiness plot might be: If 7R inventory investment[17] is currently at $150 million and the logistic pipeline is cut, how far might the FMC rate fall after 30 days without a

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[17]The reader is reminded that the 7R inventory investment referred to throughout this thesis is the dollar value of inventory on hand and not an extension of AVCAL allowance quantities.

COD/VOD? The coordinates of 30 days and 150 million dollars correspond to a 65% FMC rate.[18]

C. IMPLICATIONS FOR ROTATABLE POOL PROVISIONING

The author believes that the feedback mechanisms between transportation pipeline efficiency (almost daily delivery of material via COD/VOD) and the procedure for calculating rotatable pool allowances is creating an undue risk to aircraft readiness.

The development of this assertion will be kept brief. The discussion is intended to provide a broad overview of how pool allowances are computed, identify the feedback mechanisms which may be causing (in the author's opinion) incorrect allowances to be computed, and relate the process and the feedback loop to the data and conclusions of the forecasting analysis.

The rotatable pool is a group of repairable components which has been identified for intensified management based on demand, onboard repair capability and mission function criticality. The pool is part of the AVCAL but allowances are negotiated on an individual component basis face to face, between representatives of the carrier and the

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[18]In all cases involving manipulation of the forecasting model, the author has held all other variables constant. The mean of the observed values were used as the input value for variables held constant. There is no average day in a carrier deployment and there are an infinite number of combinations of inputs which could be used in the forecasting models.

inventory control point. The negotiation process involves specific calculations based on demand, repair turn around time, repair attrition rate, individual carrier experience with the component, and average fleet data. The negotiation process also involves personal persuasion.

The starting point for all negotiated quantities is the allowance computed by the specified formula. The allowance formula calculates two quantities which are then added together to form the final allowance. An allowance based on attrition rate[19] is calculated to provide 107 days[20] of attrition demand onboard. The second quantity is based on the demand rate, repair turn-around-time in AIMD and the use of the Poisson probability distribution to select a stock level which will produce a 90% probability of having an RFI asset in stock when a demand is received.

The feedback loop which is of concern operates in the calculation of turn-around-time (TAT).[21] TAT represents the total time it takes to repair the component in the AIMD, including time awaiting parts. Total TAT is constrained by policy to a maximum to 20 days. Each element of the total

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[19]Attrition refers to components that are beyond the repair capability of AIMD.

[20]90 days endurance plus 17 days order and shipping time, with 65% safety level.

[21]When speaking of total TAT and total AWP time, the author is referring to an individual repair action and not the aggregate of all repairs actions on a type of equipment over a period of time.

TAT also has a constraint set by policy. The constraint on mean AWP time is 20 days.

There are four factors within the TAT which have important implications for the feedback loop:

1. The number used for the awaiting parts time
2. How that number is affected by present, peacetime operating procedures
3. The sensitivity of the allowance computation to changes in AWP time
4. The sensitivity of overall readiness to changes in pool allowance levels.

While the investigation of all of these factors forms the basis for another thesis, the first two factors will be discussed here.

The quantity used for the awaiting parts time in determining the TAT of a component seems trivial upon initial examination. The aviation 3M system collects the actual data for the time a component is in an AWP status and presents it in various reports that are used for TAT computation. But let's review how and why a component accumulates AWP time.

While a component is actively undergoing maintenance, a repair part may be needed. If that part is onboard, it will probably be issued the same day and no AWP time will accumulate. If the parts requirement is not in stock (NIS) or not carried (NC), then the component will be transferred to the AWP section, where AWP time starts accumulating and a requisition will be passed off ship. The external logistic

support system is now responsible for providing the requested part to the aircraft carrier.

There are two possible cases at this point: the ashore supply system will have the material in stock and the material will be place in the transportation pipeline for delivery to the ship or the material will be NIS or NC and shipment will be delayed until the NIS/NC material is obtained by the ashore supply activity.

Thus, there are three general populations of requisition response times, each with its own mean and standard deviation: 1) issues onboard, 2) issues ashore and 3) backorders ashore.

In the first case, issues onboard, the mean AWP contribution to TAT time will be close to zero. In the second case, the mean AWP contribution to TAT will be primarily a function of the length (in time) of the transportation pipeline. Based on the author's experience, the mean TAT contribution in case 2 will fall between 5 to 9 days. In the last case, it is probable that the actual AWP time will exceed the 20 day constraint thus forcing total TAT to its maximum time of 20 days.

The present peacetime operating environment affects the TAT in the following way. With the median days between COD/VOD delivery equal to zero, rotatable pool allowances are being computed based on TAT's which incorporate a near zero transportation time from advanced logistic bases to the

carrier via COD/VOD. In a hostile environment the weakest link in the transportation pipeline will be the final delivery of the material to the carrier from advanced logistic bases. An increase of 1 day between COD/VOD deliveries translates directly into a 1 day increase in AWP time. If COD/VOD deliveries must be reduced to once every 5-7 days, AWP times will increase by more than 5-7 days[22]; mean TAT will go up and the pool component availability will decline. It is this indirect effect on readiness that is suggested in Figure 7-9 where readiness is shown to decline sharply between 20 and 40 days since the last COD/VOD delivery.

In the last three years, a carrier has not had to operate for more than 12 days without a port call or a COD/VOD delivery. Carrier battle groups spend a lot of time conducting training exercises designed to test and evaluate combat systems. They should also realistically test the logistic support system. The Navy needs to know what carrier readiness will really look like at the end of a 30 to 45 day period without external logistic support. Chapter VIII Section C identifies recommended actions to gather additional data.

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[22]A backlog of material in the transportation system will create a queuing problem. It is likely that higher priority cargo will accumulate and force AWP requisitions to wait a longer time for transportation to the carrier.

VIII. CONCLUSIONS AND RECOMMENDATIONS

In Chapter I a carrier battle group mission scenario was defined. The questions of the thesis were posed within the framework of that scenario. Chapter II defined the overall system which would be modeled in order to answer these questions. Chapter IV described the data that was collected for analysis. Chapter V explained the author's a priori expectations and hypothesis about the quantitative relationships to be explored. Chapter VI provided an in depth recounting of the steps taken in the forecasting model development. In Chapter VII, the quantitative information provided by the statistical relationships developed in Chapter VI were evaluated against the qualitative constructs of Chapters II and V. This chapter contains some concluding remarks about the overall process; answers the specific thesis questions and presents recommendations for further study and fleet application.

A. CONCLUSION

The single most important conclusion to be drawn from the thesis is:

> Daily aircraft readiness, as measured by Full Mission Capable (FMC) and Mission Capable (MC) rates, can be quantitatively modeled as a function of:
>
> a. the level of demand placed upon the logistic support system through the tempo of aircraft flight operations

b. the success of the onboard logistic support system in restoring failed aircraft systems, and

c. the ability of the external logistic support system to;

   1) maintain the capacity of the onboard logistic support system

   2) redress specific failures of the onboard logistic support system.

The author feels this study demonstrates the feasibility of a quantitative description of logistics support at the operational level.

B. THE THESIS QUESTIONS

The original thesis questions posed in Chapter I are summarized below:

1. Is aircraft readiness dependent on very frequent receipt of material via COD/VOD?

2. How sensitive are readiness levels to a change in the length of the air logistic pipeline (as measured by time)?

3. How long can high readiness levels be sustained when the logistic pipeline is completely cut?

4. Has the onboard logistic support system become so accustomed to frequent material delivery that it has, through its data collection system, incorporated or internalized "artificially" short material delivery times, thus rendering aircraft availability more sensitive than necessary to future interruption in the logistic pipeline?

Each question will be answered in order.

The fact that aircraft readiness is improved by delivery of material via COD/VOD is intuitively obvious. What may not be so obvious is just how good pacific fleet COD/VOD support has become. Following are some statistics

concerning COD/VOD delivery during 1260 days of carrier deployment.

- 1036 of the 1260 deployment days were spent at sea (82.2%).

- Of those 1036 days at sea, material was delivered via COD/VOD on 762 days (73.5%).

- The mean time between a COD/VOD delivery was 1.36 days (the frequency distribution is shown in Figure 5-5).

An examination of the sensitivity of FMC and MC rates to the frequency of COD/VOD arrivals is presented in Chapter VII, Section A.3. The results can be summarized as follows:

The FMC rate may decline at a rate of .37 percentage points per day (e.g. If today's FMC rate is 82% and a COD/VOD is not received during the day, tomorrow's FMC rate might drop to 81.6%; 82% - .37% = 81.63%) for each day without the arrival of a COD/VOD. The MC rate is indirectly linked to COD/VOD arrival frequency as follows; MC will improve at a rate of .2887 times the natural log of the weight of cargo delivered by the COD/VOD (e.g., 82% + .2887*ln10,000lbs = 84.66%).

The length of time readiness levels can be sustained when the logistics pipeline is cut depends upon the actual, real world, circumstances. In order to produce a numerical answer to this question the following assumptions were used in the FMC and MC forecasting models.

- The period of pipeline interruption is 45 days.

- Readiness at the start of the simulation is 85% MC and 82% FMC.

- The ratio of flying hours to A condition aircraft is 1.

- There are 16 cannibalization actions per day.

- $20 million dollars worth of 7R inventory is BCM'd during the 45 day period.

- $2 million dollars worth of 1R inventory is consumed during the 45 day period.

- AVCAL gross effectiveness decreases from 85% to 65%.

- There are no port calls and no COD/VOD arrivals.

- The pipeline interruption starts 8 days after leaving port.

Figure 8-1 shows the results of the simulation. At the beginning of the 45th day without external aircraft logistic support the forecasting models predict an FMC rate of 33% and an MC rate of 22%. Because FMC cannot be above MC[1], a more correct interpretation might be that FMC and MC will drop to about 33%. More information could be obtained if a stochastic simulation process such as Monte Carlo were used to answer the above question about readiness sustainability.

Referring to the 4th thesis question; the issue of whether peacetime operating efficiencies are unintentionally influencing the determination of rotatable pool allowances is discussed in Chapter VII, Section C. The conclusion drawn from the discussion in Chapter VII is:

> The AVCAL provisioning process does utilize actual external logistic support system response times in the determination of rotatable pool allowances. The extent to which this internalization of peacetime transportation times for AWP requisitions will effect rotatable pool issue effectiveness remains an open question. Thus, the interrelationships between AWP, pool allowances and readiness is an excellent topic for another thesis.

---

[1]The slope of the MC simulation plot is steeper than that of the FMC simulation plot. Up until day 11 the MC rate remains above the FMC rate. After day 11, the relationship becomes illogical. It is interesting to note that the crossover point occurs at the end of the range of observed data for days since last COD/VOD.

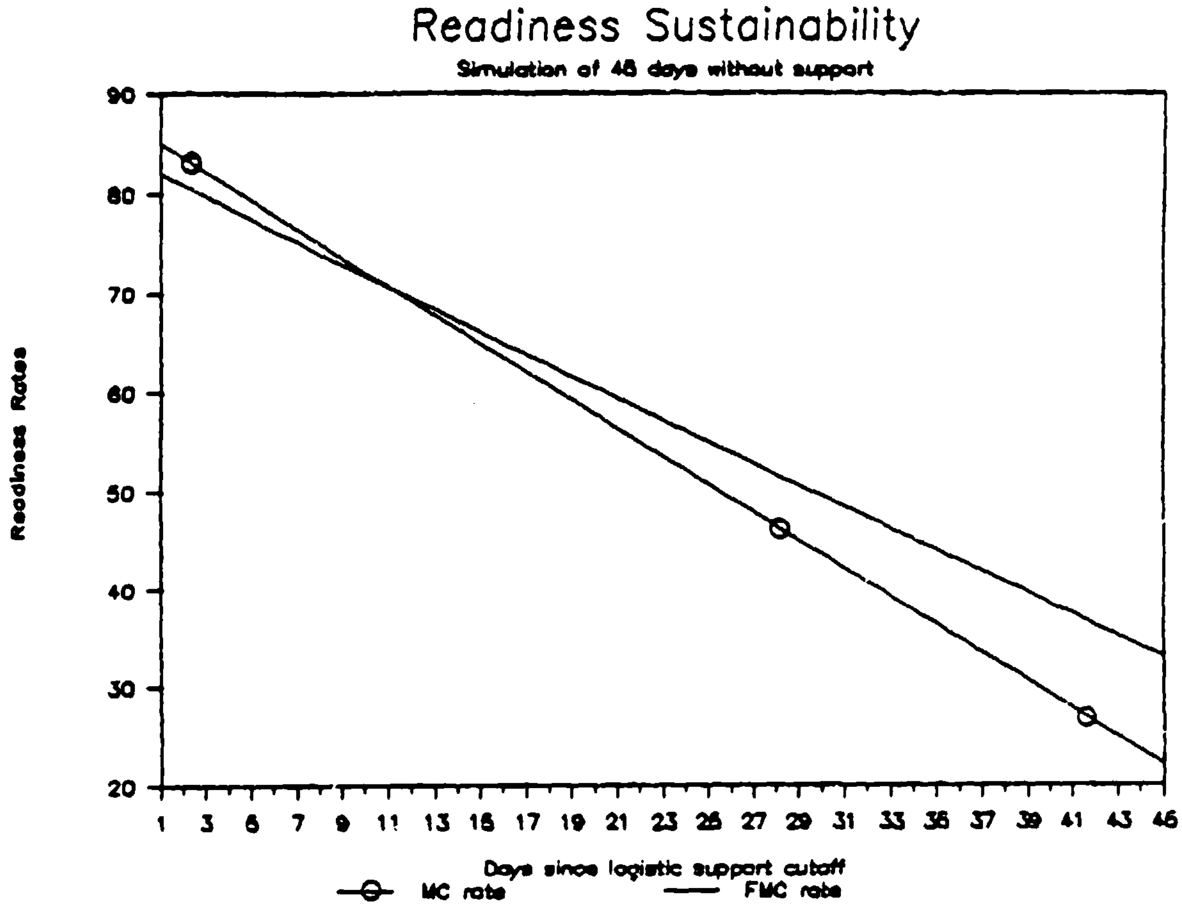

Figure 8-1 Readiness Sustainability

C. RECOMMENDATIONS

The requirement to write a thesis as partial fulfillment of the requirements for a master's degree seems to also carry with it a license to direct recommendations towards any area within the scope of that thesis.

The author was the aviation supply officer aboard a carrier deployed off the coast of Central America. The

thesis questions, a great deal of the general discussion as well as personal biases were founded on that deployment experience. It is hoped that the following comments and recommendations will make sense from the reader's perspective.

First, battle group commanders and, to a lesser degree, ship's company personnel have control over some key variables in the FMC/MC forecasting models. The data presented in this thesis can be used to quantitatively judge the effects that changes in these variables may have on readiness. The ability to quantify the tradeoffs between readiness and flying hours or readiness and keeping the US-3A flying may make it easier for commanders to estimate the effects of their decisions.

Second, carrier battle groups expend a tremendous amount of resources practicing battle tactics and evaluating weapon systems performance. A great deal of effort goes into making those exercises as real as possible so that the inferences from the collected data can be extrapolated into actual combat conditions. Certainly the logistics system is also tested during these exercises. However, the same kind of combat simulation and performance data collection has not been consciously applied to the aviation logistic support system.

During the 3 years of observed carrier deployments the longest period a carrier had to operate without either a

port call or a COD/VOD delivery was 12 days. The forecasting models strongly suggest that a break in the logistics pipeline will have a very significant negative effect on the sustainability of aircraft readiness levels.

Because there have been no instances when a carrier has had to operate without external aircraft logistic support, there is no hard data from which to draw conclusions. Therefore, the author recommends the following actions:

- Implement special logistics data collection procedures on a specific carrier.
- Conduct an exercise in which there is an actual 30-45 day denial of external aviation logistic support.

The results of such an exercise would be invaluable in identifying weaknesses of and improvements to carrier aircraft combat sustainability.

Third, other studies have attempted to create inventory models that measure their performance in terms of aircraft readiness, as opposed to supply issue effectiveness. Supply performance measures such as AVCAL net and gross effectiveness are calculated and reported monthly. Correlational analysis between measures of supply effectiveness and aircraft performance cannot be improved until the resolution (level of data aggregation) of supply data matches that of the readiness data. The AMRR reports aircraft material condition on a daily basis. The AV3M data collection system can track aircraft availability on an hourly basis. Without raising the spector of voluminous increases in supply data

reporting requirements, it is suggested that the recently installed Shipboard Uniform Automated Data Processing System--Real Time (SUADPS-RT) and NALCOMIS Repairables Management Modual (NRMM) have the capability to produce the data required to calculate supply issue effectiveness on a daily basis. The availability of daily issue effectiveness figures would allow analysts to construct a model to bridge the current gap between issue effectiveness and aircraft readiness.

Finally, the author manually gathered the data for this thesis from the pacific fleet air type commander where operational performance reports are retained for 3 years. Unless this type of information is presently archived in another location, it is recommended that longer term retention, on magnetic or optical storage mediums, be used. Ready access to historical data would improve both the opportunity for and quality of future quantitative analysis of logistic support issues.

APPENDIX A

CARD COLUMN CONTENT IDENTIFICATION

CARD COLUMN	NAME	COUNT	MISSING
C1	CV NBR	1260	
C2	DateIndx	1260	
C3	7RInvst	1260	
C4	1RInvst	1260	
C5	PoolAWP	1260	1086
C6	TotalAWP	1260	1087
C7	AWPRqns	1260	1087
C8	BrdwBchs	1260	1094
C9	AVCALDmd	1260	171
C10	PoolDmd	1260	360
C11	AVCALNet	1260	191
C12	AVCALGrs	1260	172
C13	AVCALine	1260	1211
C14	Range%	1260	1211
C15	RO%	1260	1212
C16	Inducts	1260	418
C17	RFI	1260	412
C18	AWPrate	1260	407
C19	AWMrate	1260	419
C20	MC	1260	262
C21	FMC	1260	264
C22	RI	1260	264
C23	FlyHours	1260	260
C24	FMCSort	1260	263
C25	ACond	1260	265
C26	COD/VOD	1260	138
C27	Cannib	1260	171
C28	N/PAWP	1260	270
C29	Inport	1260	1
C30	Cargo	1260	240
C31	Mail	1260	258
C32	Tweight	1260	
C33	DaysPort	1260	

APPENDIX B

COMMON STATISTICAL MEASURES FOR THE MASTER DATA BASE

Following is an explanation of the table headings:

N - number of rows with data entries
N* - number of rows for which there is missing data, "*"
Mean - arithmetic mean of the rows with data
Median - median value of rows with data
TrMean - mean of data after upper and lower 5% have been removed
StDev - standard deviation
SeMean - standard error of the mean; calculated as StDev/Sqrt(N)
Min - minimum value of data in column
Max - maximum value of data in column
Q1 - first quartile
Q3 - third quartile

The statistics shown were all calculated by Minitab. The statistics for 7R and 1R inventory investment describe the data after they have been converted to 1986 constant dollars. The data in the "Master" data file is unadjusted.

Nomenclature	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
CV NBR	1260	0	4.1579	4.0000	4.1755	1.9735	0.0556
DateIndx	1260	0	515.84	476.00	511.65	300.02	8.45
7RInvst	1260	0	104361	98499	103731	33149	938
1RInvst	1260	0	12222	11935	12226	1654	47
PoolAWP	174	1086	113.00	125.50	115.35	44.48	3.37
TotalAWP	173	1087	315.40	326.00	321.35	103.58	7.88
AWPRqns	173	1087	354.05	353.00	359.84	123.93	9.42
BrdwBchs	166	1094	3.970	3.000	3.787	3.050	0.237
AVCALDmd	1089	171	235.04	240.43	235.96	84.84	2.57
PoolDmd	900	360	41.497	41.400	41.585	13.219	0.441
AVCALNet	1069	191	89.795	89.760	89.838	3.676	0.112
AVCALGrs	1088	172	79.049	80.700	79.887	8.686	0.263
AVCALine	49	1211	62820	60162	62689	5070	724
Range%	49	1211	90.554	91.070	90.577	2.042	0.292
RO%	48	1212	90.555	88.000	90.602	6.156	0.889
Inducts	842	418	127.78	132.68	129.31	30.78	1.06
RFI	848	412	73.943	74.000	74.388	6.668	0.229
AWPrate	853	407	10.075	10.000	9.938	2.484	0.085
AWMrate	841	419	9.048	7.600	8.719	4.993	0.172
MC	998	262	85.497	86.000	85.575	3.906	0.124
FMC	996	264	81.867	82.000	81.982	4.256	0.135
RI	996	264	167.37	167.50	167.55	7.80	0.25
FlyHours	1000	260	135.47	166.00	133.61	98.12	3.10

Nomenclature	N	N*	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
FMCSort	997	263	58.51	72.00	57.71	41.69	1.32
ACond	995	265	78.569	79.000	78.772	4.322	0.137
COD/VOD	1122	138	0.6613	0.0000	0.3891	1.5575	0.0465
Cannib	1089	171	16.193	15.000	15.516	11.784	0.357
N/PAWP	990	270	15.891	15.000	15.620	7.542	0.357
Inport	1259	1	0.2542	0.0000	0.1712	0.5878	0.0166
Cargo	1020	240	1485	114	383	13956	434
Mail	1002	258	1586.5	1099.5	1319.7	21[illegible]9.4	67.3
Tweight	1260	0	2465	653	1399	12757	359
DaysPort	1260	0	30.718	19.000	28.280	30.519	0.860

Nomenclature	MIN	MAX	Q1	Q3
CV NBR	1.0000	7.0000	2.0000	6.000
DateIndx	13.00	1094.00	275.25	774.7
7RInvst	58285	173453	73925	138511
1RInvst	8431	15378	11315	13491
PoolAWP	0.00	186.00	81.00	147.00
TotalAWP	11.00	536.00	255.00	395.00
AWPRqns	0.00	588.00	288.50	451.00
BrdwBchs	0.000	13.000	2.000	6.000
AVCALDmd	34.71	431.36	186.26	283.17
PoolDmd	2.430	67.400	31.230	48.000
AVCALNet	74.400	97.000	87.400	92.000
AVCALGrs	43.000	91.010	75.000	84.730
AVCALine	57026	71557	58072	68056
Range%	86.000	95.000	89.135	91.820
RO%	81.220	98.460	84.737	96.870
Inducts	23.57	180.68	114.53	145.96
RFI	52.000	93.000	71.150	77.000
AWPrate	5.100	17.000	9.000	11.000
AWMrate	2.000	23.000	5.355	12.000
MC	68.000	96.000	83.000	88.000
FMC	64.000	95.000	79.000	85.000
RI	132.00	191.00	162.00	173.00
FlyHours	0.00	423.00	21.00	214.00
FMCSort	0.00	254.00	9.00	91.00
ACond	28.000	86.000	77.000	81.000
COD/VOD	0.0000	12.0000	0.0000	1.0000
Cannib	0.000	125.000	7.000	23.000
N/PAWP	0.000	49.000	11.000	20.000
Inport	0.0000	2.0000	0.0000	0.0000
Cargo	0	340000	0	646
Mail	0.0	22000.0	0.0	2330.5
Tweight	0	341328	0	2632
DaysPort	0.000	121.000	7.000	49.000

APPENDIX C

THE MASTER DATA BASE

Appendix C is a hard copy of the master data file described in Chapter IV. No adjustments, lags or transformations, other than those described in Chapter IV, have been applied to this data.

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
1	7	13	56844	7841	69	98	0	0
2	7	14	56844	7841	*	*	*	*
3	7	15	56844	7841	*	*	*	*
4	7	16	56844	7841	*	*	*	*
5	7	17	56844	7841	*	*	*	*
6	7	18	56844	7841	*	*	*	*
7	7	19	56844	7841	*	*	*	*
8	7	20	56844	7841	96	183	274	2
9	7	21	56844	7841	*	*	*	*
10	7	22	56844	7841	*	*	*	*
11	7	23	56844	7841	*	*	*	*
12	7	24	56844	7841	*	*	*	*
13	7	25	56844	7841	*	*	*	*
14	7	26	55771	8316	*	*	*	*
15	7	27	55771	8316	149	272	399	3
16	7	28	55771	8316	*	*	*	*
17	7	29	55771	8316	*	*	*	*
18	7	30	55771	8316	*	*	*	*
19	7	31	55771	8316	*	*	*	*
20	7	32	55771	8316	*	*	*	*
21	7	33	55771	8316	*	*	*	*
22	7	34	55771	8316	*	*	*	*
23	7	35	55771	8316	138	340	423	1
24	7	36	55771	8316	*	*	*	*
25	7	37	55771	8316	*	*	*	*
26	7	38	55771	8316	*	*	*	*
27	7	39	55771	8316	*	*	*	*
28	7	40	55771	8316	*	*	*	*
29	7	41	55771	8316	*	*	*	*
30	7	42	55771	8316	153	382	584	6
31	7	43	55771	8316	*	*	*	*
32	7	44	55771	8316	*	*	*	*
33	7	45	55771	8316	*	*	*	*
34	7	46	55771	8316	*	*	*	*
35	7	47	55771	8316	*	*	*	*
36	7	48	55771	8316	*	*	*	*
37	7	49	55771	8316	140	332	462	9
38	7	50	55771	8316	*	*	*	*
39	7	51	55771	8316	*	*	*	*
40	7	52	55771	8316	*	*	*	*
41	7	53	55771	8316	*	*	*	*
42	7	54	57951	8964	*	*	*	*
43	7	55	57951	8964	*	*	*	*
44	7	56	57951	8964	131	243	299	7
45	7	57	57951	8964	*	*	*	*
46	7	58	57951	8964	*	*	*	*
47	7	59	57951	8964	*	*	*	*
48	7	60	57951	8964	*	*	*	*
49	7	61	57951	8964	*	*	*	*
50	7	62	57951	8964	*	*	*	*
51	7	63	57951	8964	112	217	212	2
52	7	64	57951	8964	*	*	*	*
53	7	65	57951	8964	*	*	*	*
54	7	66	57951	8964	*	*	*	*
55	7	67	57951	8964	*	*	*	*
56	7	68	57951	8964	*	*	*	*
57	7	69	57951	8964	*	*	*	*
58	7	70	57951	8964	118	250	309	5
59	7	71	57951	8964	*	*	*	*
60	7	72	57951	8964	*	*	*	*
61	7	73	57951	8964	*	*	*	*
62	7	74	57951	8964	*	*	*	*
63	7	75	57951	8964	*	*	*	*
64	7	76	57951	8964	*	*	*	*
65	7	77	57951	8964	140	318	373	5
66	7	78	57951	8964	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
67	7	79	57951	8964	*	*	*	*
68	7	80	57951	8964	*	*	*	*
69	7	81	57951	8964	*	*	*	*
70	7	82	57951	8964	*	*	*	*
71	7	83	57951	8964	*	*	*	*
72	7	84	57951	8964	138	310	428	3
73	7	85	57951	8964	*	*	*	*
74	7	86	54209	9112	*	*	*	*
75	7	87	54209	9112	*	*	*	*
76	7	88	54209	9112	*	*	*	*
77	7	89	54209	[illegible]	*	*	*	*
78	7	90	54209	[illegible]	*	*	*	*
79	7	91	54209	[illegible]	141	350	375	3
80	7	92	54209	[illegible]	*	*	*	*
81	7	93	54209	9112	*	*	*	*
82	7	94	54209	9112	*	*	*	*
83	7	95	54209	9112	*	*	*	*
84	7	96	54209	9112	*	*	*	*
85	7	97	54209	9112	*	*	*	*
86	7	98	54209	9112	113	269	298	4
87	7	99	54209	9112	*	*	*	*
88	7	100	54209	9112	*	*	*	*
89	7	101	54209	9112	*	*	*	*
90	7	102	54209	9112	*	*	*	*
91	7	103	54209	9112	*	*	*	*
92	7	104	54209	9112	*	*	*	*
93	7	105	54209	9112	138	356	459	6
94	7	106	54209	9112	*	*	*	*
95	7	107	54209	9112	*	*	*	*
96	7	108	54209	9112	*	*	*	*
97	7	109	54209	9112	*	*	*	*
98	7	110	54209	9112	*	*	*	*
99	7	111	54209	9112	*	*	*	*
100	7	112	54209	9112	152	404	483	6
101	7	113	54209	9112	*	*	*	*
102	7	114	54209	9112	*	*	*	*
103	[illegible]	115	54209	9112	*	*	*	*
104	7	116	56274	9112	*	*	*	*
105	7	117	56274	9251	*	*	*	*
106	7	118	56274	9251	*	*	*	*
107	7	119	56274	9251	142	394	451	6
108	7	120	56274	9251	*	*	*	*
109	7	121	56274	9251	*	*	*	*
110	7	122	56274	9251	*	*	*	*
111	7	123	56274	9251	*	*	*	*
112	7	124	56274	9251	*	*	*	*
113	7	125	56274	9251	*	*	*	*
114	7	126	56274	9251	174	411	479	3
115	7	127	56274	9251	*	*	*	*
116	7	128	56274	9251	*	*	*	*
117	7	129	56274	9251	*	*	*	*
118	7	130	56274	9251	*	*	*	*
119	7	131	56274	9251	*	*	*	*
120	7	132	56274	9251	*	*	*	*
121	7	133	56274	9251	169	397	488	3
122	7	134	56274	9251	*	*	*	*
123	7	135	56274	9251	*	*	*	*
124	7	136	56274	9251	*	*	*	*
125	7	137	56274	9251	*	*	*	*
126	7	[illegible]	56274	9251	*	*	*	*
127	7	[illegible]	56274	9251	*	*	*	*
128	7	[illegible]	56274	9251	159	396	461	2
129		[illegible]	56274	9251	*	*	*	*
130	[illegible]	[illegible]	56274	9251	*	*	*	*
131	[illegible]	[illegible]	56274	9251	*	*	*	*
132	7	[illegible]	56274	9251	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAWP	TotalAWP	AWPRqns	BrdwBchs
133	7	145	56274	9251	*	*	*	*
134	7	146	56274	9251	*	*	*	*
135	7	147	58127	9726	148	393	429	2
136	7	148	58127	9726	*	*	*	*
137	7	149	58127	9726	*	*	*	*
138	7	150	58127	9726	*	*	*	*
139	7	151	58127	9726	*	*	*	*
140	7	152	58127	9726	*	*	*	*
141	7	153	58127	9726	*	*	*	*
142	7	154	58127	9726	140	373	456	0
143	7	155	58127	9726	*	*	*	*
144	7	156	58127	9726	*	*	*	*
145	7	157	58127	9726	*	*	*	*
146	7	158	58127	9726	*	*	*	*
147	7	159	58127	9726	*	*	*	*
148	7	160	58127	9726	*	*	*	*
149	7	161	58127	9726	148	389	471	0
150	7	162	58127	9726	*	*	*	*
151	7	163	58127	9726	*	*	*	*
152	7	164	58127	9726	*	*	*	*
153	7	165	58127	9726	*	*	*	*
154	7	166	58127	9726	*	*	*	*
155	7	167	58127	9726	*	*	*	*
156	7	168	58127	9726	160	421	496	0
157	7	169	58127	9726	*	*	*	*
158	7	170	58127	9726	*	*	*	*
159	7	171	58127	9726	*	*	*	*
160	7	172	58127	9726	*	*	*	*
161	7	173	58127	9726	*	*	*	*
162	7	174	58127	9726	*	*	*	*
163	7	175	58127	9726	159	438	529	2
164	7	176	58127	9726	*	*	*	*
165	7	177	59734	9726	*	*	*	*
166	7	178	59734	10556	*	*	*	*
167	7	179	59734	10556	*	*	*	*
168	7	180	59734	10556	*	*	*	*
169	7	181	59734	10556	*	*	*	*
170	7	182	59734	10556	184	435	551	2
171	7	183	59734	10556	*	*	*	*
172	7	184	59734	10556	*	*	*	*
173	7	185	59734	10556	*	*	*	*
174	7	186	59734	10556	*	*	*	*
175	7	187	59734	10556	*	*	*	*
176	7	188	59734	10556	*	*	*	*
177	7	189	59734	10556	131	386	408	2
178	7	190	59734	10556	*	*	*	*
179	7	191	59734	10556	*	*	*	*
180	7	192	59734	10556	*	*	*	*
181	7	193	59734	10556	*	*	*	*
182	7	194	59734	10556	*	*	*	*
183	7	195	59734	10556	*	*	*	*
184	7	196	59734	10556	118	282	292	1
185	7	197	59734	10556	*	*	*	*
186	7	198	59734	10556	*	*	*	*
187	7	199	59734	10556	*	*	*	*
188	7	200	59734	10556	*	*	*	*
189	7	201	59734	10556	*	*	*	*
190	7	202	59734	10556	*	*	*	*
191	7	203	59734	10556	84	144	180	2
192	7	204	59724	10556	*	*	*	*
193	6	153	77719	10593	6	11	9	2
194	6	154	77719	10593	*	*	*	*
195	6	155	77719	10593	*	*	*	*
196	6	156	77719	10593	*	*	*	*
197	6	157	77719	10593	*	*	*	*
198	6	158	77719	10593	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAWP	TotalAWP	AWPRqns	BrdwBchs
199	6	159	77719	10593	*	*	*	*
200	6	160	77719	10593	50	129	142	6
201	6	161	77719	10593	*	*	*	*
202	6	162	77719	10593	*	*	*	*
203	6	163	77719	10593	*	*	*	*
204	6	164	77719	10593	*	*	*	*
205	6	165	77719	10593	*	*	*	*
206	6	166	77719	10593	*	*	*	*
207	6	167	77719	10593	80	185	221	8
208	6	168	77719	10593	*	*	*	*
209	6	169	77719	10593	*	*	*	*
210	6	170	77719	10593	*	*	*	*
211	6	171	77719	10593	*	*	*	*
212	6	172	77719	10593	*	*	*	*
213	6	173	77719	10593	*	*	*	*
214	6	174	77719	10593	71	184	207	6
215	6	175	77719	10593	*	*	*	*
216	6	176	77719	10593	*	*	*	*
217	6	177	77719	10593	*	*	*	*
218	6	178	82120	11027	*	*	*	*
219	6	179	82120	11027	*	*	*	*
220	6	180	82120	11027	*	*	*	*
221	6	181	82120	11027	93	243	279	7
222	6	182	82120	11027	*	*	*	*
223	6	183	82120	11027	*	*	*	*
224	6	184	82120	11027	*	*	*	*
225	6	185	82120	11027	*	*	*	*
226	6	186	82120	11027	*	*	*	*
227	6	187	82120	11027	*	*	*	*
228	6	188	82120	11027	100	269	308	11
229	6	189	82120	11027	*	*	*	*
230	6	190	82120	11027	*	*	*	*
231	6	191	82120	11027	*	*	*	*
232	6	192	82120	11027	*	*	*	*
233	6	193	82120	11027	*	*	*	*
234	6	194	82120	11027	*	*	*	*
235	6	195	82120	11027	103	263	302	9
236	6	196	82120	11027	*	*	*	*
237	6	197	82120	11027	*	*	*	*
238	6	198	82120	11027	*	*	*	*
239	6	199	82120	11027	*	*	*	*
240	6	200	82120	11027	*	*	*	*
241	6	201	82120	11027	*	*	*	*
242	6	202	82120	11027	127	344	393	8
243	6	203	82120	11027	*	*	*	*
244	6	204	82120	11027	*	*	*	*
245	6	205	82120	11027	*	*	*	*
246	6	206	82120	11027	*	*	*	*
247	6	207	82120	11027	*	*	*	*
248	6	208	80535	10740	*	*	*	*
249	6	209	80535	10740	96	201	212	9
250	6	210	80535	10740	*	*	*	*
251	6	211	80535	10740	*	*	*	*
252	6	212	80535	10740	*	*	*	*
253	6	213	80535	10740	*	*	*	*
254	6	214	80535	10740	*	*	*	*
255	6	215	80535	10740	*	*	*	*
256	6	216	80535	10740	99	210	211	10
257	6	217	80535	10740	*	*	*	*
258	6	218	80535	10740	*	*	*	*
259	6	219	80535	10740	*	*	*	*
260	6	220	80535	10740	*	*	*	*
261	6	221	80535	10740	*	*	*	*
262	6	222	80535	10740	*	*	*	*
263	6	223	80535	10740	127	243	251	11
264	6	224	80535	10740	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAHP	TotalAHP	AHPRqns	BrdwBchs
265	6	225	80535	10740	*	*	*	*
266	6	226	30535	10740	*	*	*	*
267	6	227	80535	10740	*	*	*	*
268	6	228	80535	10740	*	*	*	*
269	6	229	80535	10740	*	*	*	*
270	6	230	80535	10740	124	294	317	11
271	6	231	80535	10740	*	*	*	*
272	6	232	80535	10740	*	*	*	*
273	6	233	80535	10740	*	*	*	*
274	6	234	80535	10740	*	*	*	*
275	6	235	80535	10740	*	*	*	*
276	6	236	80535	10740	*	*	*	*
277	6	237	80535	10740	130	311	323	8
278	6	238	80535	10740	*	*	*	*
279	6	239	81425	11124	*	*	*	*
280	6	240	81425	11124	*	*	*	*
281	6	241	81425	11124	*	*	*	*
282	6	242	81425	11124	*	*	*	*
283	6	243	81425	11124	*	*	*	*
284	6	244	81425	11124	146	323	330	7
285	6	245	81425	11124	*	*	*	*
286	6	246	81425	11124	*	*	*	*
287	6	247	81425	11124	*	*	*	*
288	6	248	81425	11124	*	*	*	*
289	6	249	81425	11124	*	*	*	*
290	6	250	81425	11124	*	*	*	*
291	6	251	81425	11124	166	353	308	5
292	6	252	81425	11124	*	*	*	*
293	6	253	81425	11124	*	*	*	*
294	6	254	81425	11124	*	*	*	*
295	6	255	81425	11124	*	*	*	*
296	6	256	81425	11124	*	*	*	*
297	6	257	81425	11124	*	*	*	*
298	6	258	81425	11124	162	365	355	4
299	6	259	81425	11124	*	*	*	*
300	6	260	81425	11124	*	*	*	*
301	6	261	81425	11124	*	*	*	*
302	6	262	81425	11124	*	*	*	*
303	6	263	81425	11124	*	*	*	*
304	6	264	81425	11124	*	*	*	*
305	6	265	81425	11124	141	341	324	3
306	6	266	81425	11124	*	*	*	*
307	6	267	81425	11124	*	*	*	*
308	6	268	81425	11124	*	*	*	*
309	6	269	81425	11124	*	*	*	*
310	6	270	82346	11820	*	*	*	*
311	6	271	82346	11820	*	*	*	*
312	6	272	82346	11820	129	307	307	0
313	6	273	82346	11820	*	*	*	*
314	6	274	82346	11820	*	*	*	*
315	6	275	82346	11820	*	*	*	*
316	6	276	82346	11820	*	*	*	*
317	6	277	82346	11820	*	*	*	*
318	6	278	82346	11820	*	*	*	*
319	6	279	82346	11820	125	289	311	2
320	6	280	82346	11820	*	*	*	*
321	6	281	82346	11820	*	*	*	*
322	6	282	82346	11820	*	*	*	*
323	6	283	82346	11820	*	*	*	*
324	6	284	82346	11820	*	*	*	*
325	6	285	82346	11820	*	*	*	*
326	6	286	82346	11820	127	348	353	2
327	6	287	82346	11820	*	*	*	*
328	6	288	82346	11820	*	*	*	*
329	6	289	82346	11820	*	*	*	*
330	6	290	82346	11820	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAHP	TotalAHP	AHPRqns	BrdwBchs
331	6	291	82346	11820	*	*	*	*
332	6	292	82346	11820	*	*	*	*
333	6	293	82346	11820	126	326	301	3
334	6	294	82346	11820	*	*	*	*
335	6	295	82346	11820	*	*	*	*
336	6	296	82346	11820	*	*	*	*
337	6	297	82346	11820	*	*	*	*
338	6	298	82346	11820	*	*	*	*
339	6	299	82346	11820	*	*	*	*
340	6	300	81045	11612	123	312	315	4
341	6	301	81045	11612	*	*	*	*
342	6	302	81045	11612	*	*	*	*
343	6	303	81045	11612	*	*	*	*
344	6	304	81045	11612	*	*	*	*
345	6	305	81045	11612	*	*	*	*
346	6	306	81045	11612	*	*	*	*
347	6	307	81045	11612	130	333	347	3
348	6	308	81045	11612	*	*	*	*
349	6	309	81045	11612	*	*	*	*
350	6	310	81045	11612	*	*	*	*
351	6	311	81045	11612	*	*	*	*
352	6	312	81045	11612	*	*	*	*
353	6	313	81045	11612	*	*	*	*
354	6	314	81045	11612	122	315	317	4
355	6	315	81045	11612	*	*	*	*
356	6	316	81045	11612	*	*	*	*
357	6	317	81045	11612	*	*	*	*
358	6	318	81045	11612	*	*	*	*
359	6	319	81045	11612	*	*	*	*
360	6	320	81045	11612	*	*	*	*
361	6	321	81045	11612	107	224	216	3
362	6	322	81045	11612	*	*	*	*
363	6	323	81045	11612	*	*	*	*
364	6	324	81045	11612	*	*	*	*
365	6	325	81045	11612	*	*	*	*
366	6	326	81045	11612	*	*	*	*
367	6	327	81045	11612	*	*	*	*
368	6	328	81045	11612	109	243	263	3
369	6	329	81045	11612	*	*	*	*
370	6	330	81045	11612	*	*	*	*
371	6	331	79458	11825	*	*	*	*
372	6	332	79458	11825	*	*	*	*
373	6	333	79458	11825	*	*	*	*
374	6	334	79458	11825	*	*	*	*
375	6	335	79458	11825	124	258	255	2
376	6	336	79458	11825	*	*	*	*
377	6	337	79458	11825	*	*	*	*
378	6	338	79458	11825	*	*	*	*
379	6	339	79458	11825	*	*	*	*
380	6	340	79458	11825	*	*	*	*
381	6	341	79458	11825	*	*	*	*
382	6	342	79458	11825	128	290	317	2
383	6	343	79458	11825	*	*	*	*
384	6	344	79458	11825	*	*	*	*
385	5	289	58333	9169	*	*	*	*
386	5	290	58333	9169	*	*	*	*
387	5	291	58333	9169	*	*	*	*
388	5	292	58333	9169	*	*	*	*
389	5	293	58333	9169	17	55	39	6
390	5	294	58333	9169	*	*	*	*
391	5	295	58333	9169	*	*	*	*
392	5	296	58333	9169	*	*	*	*
393	5	297	58333	9169	*	*	*	*
394	5	298	58333	9169	*	*	*	*
395	5	299	69059	10413	*	*	*	*
396	5	300	69059	10413	54	142	122	8

ROW	CV NBR	DataIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
397	5	301	69059	10413	*	*	*	*
398	5	302	69059	10413	*	*	*	*
399	5	303	69059	10413	*	*	*	*
400	5	304	69059	10413	*	*	*	*
401	5	305	69059	10413	*	*	*	*
402	5	306	69059	10413	*	*	*	*
403	5	307	69059	10413	88	195	254	7
404	5	308	69059	10413	*	*	*	*
405	5	309	69059	10413	*	*	*	*
406	5	310	69059	10413	*	*	*	*
407	5	311	69059	10413	*	*	*	*
408	5	312	69059	10413	*	*	*	*
409	5	313	69059	10413	*	*	*	*
410	5	314	69059	10413	129	274	335	5
411	5	315	69059	10413	*	*	*	*
412	5	316	69059	10413	*	*	*	*
413	5	317	69059	10413	*	*	*	*
414	5	318	69059	10413	*	*	*	*
415	5	319	69059	10413	*	*	*	*
416	5	320	69059	10413	*	*	*	*
417	5	321	69059	10413	140	370	385	7
418	5	322	69059	10413	*	*	*	*
419	5	323	69059	10413	*	*	*	*
420	5	324	69059	10413	*	*	*	*
421	5	325	69059	10413	*	*	*	*
422	5	326	69059	10413	*	*	*	*
423	5	327	69059	10413	*	*	*	*
424	5	328	69059	10413	165	366	432	8
425	5	329	69059	10413	*	*	*	*
426	5	330	70733	10299	*	*	*	*
427	5	331	70733	10299	*	*	*	*
428	5	332	70733	10299	*	*	*	*
429	5	333	70733	10299	*	*	*	*
430	5	334	70733	10299	*	*	*	*
431	5	335	70733	10299	174	405	414	11
432	5	336	70733	10299	*	*	*	*
433	5	337	70733	10299	*	*	*	*
434	5	338	70733	10299	*	*	*	*
435	5	339	70733	10299	*	*	*	*
436	5	340	70733	10299	*	*	*	*
437	5	341	70733	10299	*	*	*	*
438	5	342	70733	10299	165	374	364	11
439	5	343	70733	10299	*	*	*	*
440	5	344	70733	10299	*	*	*	*
441	5	345	70733	10299	*	*	*	*
442	5	346	70733	10299	*	*	*	*
443	5	347	70733	10299	*	*	*	*
444	5	348	70733	10299	*	*	*	*
445	5	349	70733	10299	168	333	341	9
446	5	350	70733	10299	*	*	*	*
447	5	351	70733	10299	*	*	*	*
448	5	352	70733	10299	*	*	*	*
449	5	353	70733	10299	*	*	*	*
450	5	354	70733	10299	*	*	*	*
451	5	355	70733	10299	*	*	*	*
452	5	356	70733	10299	151	356	370	12
453	5	357	70733	10299	*	*	*	*
454	5	358	70733	10299	*	*	*	*
455	5	359	70733	10299	*	*	*	*
456	5	360	71274	10544	*	*	*	*
457	5	361	71274	10544	*	*	*	*
458	5	362	71274	10544	*	*	*	*
459	5	363	71274	10544	139	282	334	13
460	5	364	71274	10544	*	*	*	*
461	5	365	71274	10544	*	*	*	*
462	5	366	71274	10544	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAHP	TotalAHP	AHPRqns	BrdwBchs
463	5	367	71274	10544	*	*	*	*
464	5	368	71274	10544	*	*	*	*
465	5	369	71274	10544	*	*	*	*
466	5	370	71274	10544	125	259	222	11
467	5	371	71274	10544	*	*	*	*
468	5	372	71274	10544	*	*	*	*
469	5	373	71274	10544	*	*	*	*
470	5	374	71274	10544	*	*	*	*
471	5	375	71274	10544	*	*	*	*
472	5	376	71274	10544	*	*	*	*
473	5	377	71274	10544	125	271	262	9
474	5	378	71274	10544	*	*	*	*
475	5	379	71274	10544	*	*	*	*
476	5	380	71274	10544	*	*	*	*
477	5	381	71274	10544	*	*	*	*
478	5	382	71274	10544	*	*	*	*
479	5	383	71274	10544	*	*	*	*
480	5	384	71274	10544	133	331	354	8
481	5	385	71274	10544	*	*	*	*
482	5	386	71274	10544	*	*	*	*
483	5	387	71274	10544	*	*	*	*
484	5	388	71274	10544	*	*	*	*
485	5	389	71274	10544	*	*	*	*
486	5	390	71274	10544	*	*	*	*
487	5	391	74417	11205	147	313	375	5
488	5	392	74417	11205	*	*	*	*
489	5	393	74417	11205	*	*	*	*
490	5	394	74417	11205	*	*	*	*
491	5	395	74417	11205	*	*	*	*
492	5	396	74417	11205	*	*	*	*
493	5	397	74417	11205	*	*	*	*
494	5	398	74417	11205	147	365	375	8
495	5	399	74417	11205	*	*	*	*
496	5	400	74417	11205	*	*	*	*
497	5	401	74417	11205	*	*	*	*
498	5	402	74417	11205	*	*	*	*
499	5	403	74417	11205	*	*	*	*
500	5	404	74417	11205	*	*	*	*
501	5	405	74417	11205	155	410	386	5
502	5	406	74417	11205	*	*	*	*
503	5	407	74417	11205	*	*	*	*
504	5	408	74417	11205	*	*	*	*
505	5	409	74417	11205	*	*	*	*
506	5	410	74417	11205	*	*	*	*
507	5	411	74417	11205	*	*	*	*
508	5	412	74417	11205	173	418	438	6
509	5	413	74417	11205	*	*	*	*
510	5	414	74417	11205	*	*	*	*
511	5	415	74417	11205	*	*	*	*
512	5	416	74417	11205	*	*	*	*
513	5	417	74417	11205	*	*	*	*
514	5	418	74417	11205	*	*	*	*
515	5	419	78245	11119	163	435	474	9
516	5	420	78245	11119	*	*	*	*
517	5	421	78245	11119	*	*	*	*
518	5	422	78245	11119	*	*	*	*
519	5	423	78245	11119	*	*	*	*
520	5	424	78245	11119	*	*	*	*
521	5	425	78245	11119	*	*	*	*
522	5	426	78245	11119	177	428	482	5
523	5	427	78245	11119	*	*	*	*
524	5	428	78245	11119	*	*	*	*
525	5	429	78245	11119	*	*	*	*
526	5	430	78245	11119	*	*	*	*
527	5	431	78245	11119	*	*	*	*
528	5	432	78245	11119	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
529	5	433	78245	11119	186	452	469	7
530	5	434	78245	11119	*	*	*	*
531	5	435	78245	11119	*	*	*	*
532	5	436	78245	11119	*	*	*	*
533	5	437	78245	11119	*	*	*	*
534	5	438	78245	11119	*	*	*	*
535	5	439	78245	11119	*	*	*	*
536	5	440	78245	11119	157	433	420	6
537	5	441	78245	11119	*	*	*	*
538	5	442	78245	11119	*	*	*	*
539	5	443	78245	11119	*	*	*	*
540	5	444	78245	11119	*	*	*	*
541	5	445	78245	11119	*	*	*	*
542	5	446	78245	11119	*	*	*	*
543	5	447	78245	11119	149	454	504	*
544	5	448	78245	11119	*	*	*	*
545	5	449	78245	11119	*	*	*	*
546	5	450	96444	12875	*	*	*	*
547	5	451	96444	12875	*	*	*	*
548	5	452	96444	12875	*	*	*	*
549	5	453	96444	12875	*	*	*	*
550	5	454	96444	12875	164	432	488	2
551	5	455	96444	12875	*	*	*	*
552	5	456	96444	12875	*	*	*	*
553	5	457	96444	12875	*	*	*	*
554	5	458	96444	12875	*	*	*	*
555	5	459	96444	12875	*	*	*	*
556	5	460	96444	12875	*	*	*	*
557	5	461	96444	12875	167	454	505	6
558	5	462	96444	12875	*	*	*	*
559	5	463	96444	12875	*	*	*	*
560	5	464	96444	12875	*	*	*	*
561	5	465	96444	12875	*	*	*	*
562	5	466	96444	12875	*	*	*	*
563	5	467	96444	12875	*	*	*	*
564	5	468	96444	12875	142	427	472	7
565	5	469	96444	12875	*	*	*	*
566	5	470	96444	12875	*	*	*	*
567	5	471	96444	12875	*	*	*	*
568	5	472	96444	12875	*	*	*	*
569	5	473	96444	12875	*	*	*	*
570	5	474	96444	12875	143	406	442	6
571	5	475	96444	12875	*	*	*	*
572	5	476	96444	12875	*	*	*	*
573	5	477	96444	12875	*	*	*	*
574	5	478	96444	12875	*	*	*	*
575	5	479	96444	12875	*	*	*	*
576	5	480	96444	12875	*	*	*	*
577	5	481	62938	13240	*	*	*	*
578	5	482	62938	13240	143	410	328	1
579	5	483	62938	13240	*	*	*	*
580	5	484	62938	13240	*	*	*	*
581	5	485	62938	13240	*	*	*	*
582	5	486	62938	13240	*	*	*	*
583	5	487	62938	13240	*	*	*	*
584	5	488	62938	13240	*	*	*	*
585	5	489	62938	13240	131	284	283	*
586	5	490	62938	13240	*	*	*	*
587	5	491	62938	13240	*	*	*	*
588	5	492	62938	13240	*	*	*	*
589	5	493	62938	13240	*	*	*	*
590	5	494	62938	13240	*	*	*	*
591	5	495	62938	13240	*	*	*	*
592	5	496	62938	13240	*	*	*	*
593	5	497	62938	13240	*	*	*	*
594	5	498	62938	13240	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
595	5	499	62938	13240	*	*	*	*
596	5	500	62938	13240	*	*	*	*
597	5	501	62938	13240	*	*	*	*
598	4	418	76150	11081	*	*	*	*
599	4	419	76150	11081	6	14	0	2
600	4	420	76150	11081	*	*	*	*
601	4	421	76150	11081	*	*	*	*
602	4	422	80589	11467	*	*	*	*
603	4	423	80589	11467	*	*	*	*
604	4	424	80589	11467	*	*	*	*
605	4	425	80589	11467	*	*	*	*
606	4	426	80589	11467	47	86	110	5
607	4	427	80589	11467	*	*	*	*
608	4	428	80589	11467	*	*	*	*
609	4	429	80589	11467	*	*	*	*
610	4	430	80589	11467	*	*	*	*
611	4	431	80589	11467	*	*	*	*
612	4	432	80589	11467	*	*	*	*
613	4	433	80589	11467	70	185	231	7
614	4	434	80589	11467	*	*	*	*
615	4	435	80589	11467	*	*	*	*
616	4	436	80589	11467	*	*	*	*
617	4	437	80589	11467	*	*	*	*
618	4	438	80589	11467	*	*	*	*
619	4	439	80589	11467	*	*	*	*
620	4	440	80589	11467	83	217	243	5
621	4	441	80589	11467	*	*	*	*
622	4	442	80589	11467	*	*	*	*
623	4	443	80589	11467	*	*	*	*
624	4	444	80589	11467	*	*	*	*
625	4	445	80589	11467	*	*	*	*
626	4	446	80589	11467	*	*	*	*
627	4	447	80589	11467	79	243	311	5
628	4	448	80589	11467	*	*	*	*
629	4	449	80589	11467	*	*	*	*
630	4	450	80589	11467	*	*	*	*
631	4	451	80589	11467	*	*	*	*
632	4	452	80589	11467	*	*	*	*
633	4	453	141577	11935	*	*	*	*
634	4	454	141577	11935	82	242	311	3
635	4	455	141577	11935	*	*	*	*
636	4	456	141577	11935	*	*	*	*
637	4	457	141577	11935	*	*	*	*
638	4	458	141577	11935	*	*	*	*
639	4	459	141577	11935	*	*	*	*
640	4	460	141577	11935	*	*	*	*
641	4	461	141577	11935	84	198	248	3
642	4	462	141577	11935	*	*	*	*
643	4	463	141577	11935	*	*	*	*
644	4	464	141577	11935	*	*	*	*
645	4	465	141577	11935	*	*	*	*
646	4	466	141577	11935	*	*	*	*
647	4	467	141577	11935	*	*	*	*
648	4	468	141577	11935	87	273	322	3
649	4	469	141577	11935	*	*	*	*
650	4	470	141577	11935	*	*	*	*
651	4	471	141577	11935	*	*	*	*
652	4	472	141577	11935	*	*	*	*
653	4	473	141577	11935	*	*	*	*
654	4	474	141577	11935	*	*	*	*
655	4	475	141577	11935	101	301	363	3
656	4	476	141577	11935	*	*	*	*
657	4	477	141577	11935	*	*	*	*
658	4	478	141577	11935	*	*	*	*
659	4	479	141577	11935	*	*	*	*
660	4	480	141577	11935	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAHP	TotalAHP	AHPRqns	BrdxBchs
661	4	481	141577	11935	*	*	*	*
662	4	482	141577	11935	128	350	394	2
663	4	483	141577	11935	*	*	*	*
664	4	484	135763	12156	*	*	*	*
665	4	485	135763	12156	*	*	*	*
666	4	486	135763	12156	*	*	*	*
667	4	487	135763	12156	*	*	*	*
668	4	488	135763	12156	*	*	*	*
669	4	489	135763	12156	135	361	471	3
670	4	490	135763	12156	*	*	*	*
671	4	491	135763	12156	*	*	*	*
672	4	492	135763	12156	*	*	*	*
673	4	493	135763	12156	*	*	*	*
674	4	494	135763	12156	*	*	*	*
675	4	495	135763	12156	*	*	*	*
676	4	496	135763	12156	149	352	468	3
677	4	497	135763	12156	*	*	*	*
678	4	498	135763	12156	*	*	*	*
679	4	499	135763	12156	*	*	*	*
680	4	500	135763	12156	*	*	*	*
681	4	501	135763	12156	*	*	*	*
682	4	502	135763	12156	*	*	*	*
683	4	503	135763	12156	140	382	434	2
684	4	504	135763	12156	*	*	*	*
685	4	505	135763	12156	*	*	*	*
686	4	506	135763	12156	*	*	*	*
687	4	507	135763	12156	*	*	*	*
688	4	508	135763	12156	*	*	*	*
689	4	509	135763	12156	*	*	*	*
690	4	510	135763	12156	126	365	468	3
691	4	511	135763	12156	*	*	*	*
692	4	512	135763	12156	*	*	*	*
693	4	513	135763	12156	*	*	*	*
694	4	514	136635	12558	*	*	*	*
695	4	515	136635	12558	*	*	*	*
696	4	516	136635	12558	*	*	*	*
697	4	517	136635	12558	137	352	397	5
698	4	518	136635	12558	*	*	*	*
699	4	519	136635	12558	*	*	*	*
700	4	520	136635	12558	*	*	*	*
701	4	521	136635	12558	*	*	*	*
702	4	522	136635	12558	*	*	*	*
703	4	523	136635	12558	*	*	*	*
704	4	524	136635	12558	131	358	426	5
705	4	525	136635	12558	*	*	*	*
706	4	526	136635	12558	*	*	*	*
707	4	527	136635	12558	*	*	*	*
708	4	528	136635	12558	*	*	*	*
709	4	529	136635	12558	*	*	*	*
710	4	530	136635	12558	*	*	*	*
711	4	531	136635	12558	*	*	*	*
712	4	532	136635	12558	142	362	488	*
713	4	533	136635	12558	*	*	*	*
714	4	534	136635	12558	*	*	*	*
715	4	535	136635	12558	*	*	*	*
716	4	536	136635	12558	*	*	*	*
717	4	537	136635	12558	*	*	*	*
718	4	538	136635	12558	*	*	*	*
719	4	539	136635	12558	*	*	*	5
720	4	540	136635	12558	165	435	532	*
721	4	541	136635	12558	*	*	*	*
722	4	542	136635	12558	*	*	*	*
723	4	543	136635	12558	*	*	*	*
724	4	544	136635	12558	*	*	*	*
725	4	545	173483	12903	*	*	*	*
726	4	546	173483	12903	*	*	*	3

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAWP	TotalAWP	AWPRqns	BrdwBchs
727	4	547	173453	12903	173	430	549	*
728	4	548	173453	12903	*	*	*	*
729	4	549	173453	12903	*	*	*	*
730	4	550	173453	12903	*	*	*	*
731	4	551	173453	12903	*	*	*	*
732	4	552	173453	12903	*	*	*	*
733	4	553	173453	12903	*	*	*	1
734	4	554	173453	12903	177	451	546	*
735	4	555	173453	12903	*	*	*	*
736	4	556	173453	12903	*	*	*	*
737	4	557	173453	12903	*	*	*	*
738	4	558	173453	12903	*	*	*	*
739	4	559	173453	12903	*	*	*	*
740	4	560	173453	12903	*	*	*	2
741	4	561	173453	12903	168	392	558	*
742	4	562	173453	12903	*	*	*	*
743	4	563	173453	12903	*	*	*	*
744	4	564	173453	12903	*	*	*	*
745	4	565	173453	12903	*	*	*	*
746	4	566	173453	12903	*	*	*	*
747	4	567	173453	12903	*	*	*	3
748	4	568	173453	12903	169	434	543	*
749	4	569	173453	12903	*	*	*	*
750	4	570	173453	12903	*	*	*	*
751	4	571	173453	12903	*	*	*	*
752	4	572	173453	12903	*	*	*	*
753	4	573	173453	12903	*	*	*	*
754	4	574	173453	12903	*	*	*	3
755	4	575	142198	13191	155	324	446	*
756	4	576	142198	13191	*	*	*	*
757	4	577	142198	13191	*	*	*	*
758	4	578	142198	13191	*	*	*	*
759	4	579	142198	13191	*	*	*	*
760	4	580	142198	13191	*	*	*	*
761	4	581	142198	13191	*	*	*	2
762	4	582	142198	13191	150	347	459	*
763	4	583	142198	13191	*	*	*	*
764	4	584	142198	13191	*	*	*	*
765	4	585	142198	13191	*	*	*	*
766	4	586	142198	13191	*	*	*	*
767	4	587	142198	13191	*	*	*	*
768	4	588	142198	13191	*	*	*	2
769	4	589	142198	13191	141	322	436	*
770	4	590	142198	13191	*	*	*	*
771	4	591	142198	13191	*	*	*	*
772	4	592	142198	13191	*	*	*	*
773	3	571	92112	10476	*	*	*	*
774	3	572	92112	10476	*	*	*	*
775	3	573	102084	11542	0	34	1	0
776	3	574	102084	11542	*	*	*	*
777	3	575	102084	11542	*	*	*	*
778	3	576	102084	11542	*	*	*	*
779	3	577	102084	11542	*	*	*	*
780	3	578	102084	11542	*	*	*	*
781	3	579	102084	11542	*	*	*	*
782	3	580	102084	11542	22	121	146	0
783	3	581	102084	11542	*	*	*	*
784	3	582	102084	11542	*	*	*	*
785	3	583	102084	11542	*	*	*	*
786	3	584	102084	11542	*	*	*	*
787	3	585	102084	11542	*	*	*	*
788	3	586	102084	11542	*	*	*	*
789	3	587	102084	11542	16	196	270	3
790	3	588	102084	11542	*	*	*	*
791	3	589	102084	11542	*	*	*	*
792	3	590	102084	11542	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
793	3	591	102084	11542	*	*	*	*
794	3	592	102084	11542	*	*	*	*
795	3	593	102084	11542	*	*	*	*
796	3	594	102084	11542	21	207	185	2
797	3	595	102084	11542	*	*	*	*
798	3	596	102084	11542	*	*	*	*
799	3	597	102084	11542	*	*	*	*
800	3	598	102084	11542	*	*	*	*
801	3	599	102084	11542	*	*	*	*
802	3	600	102084	11542	*	*	*	*
803	3	601	102084	11542	10	208	207	1
804	3	602	102084	11542	*	*	*	*
805	3	603	102084	11542	*	*	*	*
806	3	604	111974	11954	*	*	*	*
807	3	605	111974	11954	*	*	*	*
808	3	606	111974	11954	*	*	*	*
809	3	607	111974	11954	*	*	*	*
810	3	608	111974	11954	75	243	217	6
811	3	609	111974	11954	*	*	*	*
812	3	610	111974	11954	*	*	*	*
813	3	611	111974	11954	*	*	*	*
814	3	612	111974	11954	*	*	*	*
815	3	613	111974	11954	*	*	*	*
816	3	614	111974	11954	*	*	*	*
817	3	615	111974	11954	56	299	322	1
818	3	616	111974	11954	*	*	*	*
819	3	617	111974	11954	*	*	*	*
820	3	618	111974	11954	*	*	*	*
821	3	619	111974	11954	*	*	*	*
822	3	620	111974	11954	*	*	*	*
823	3	621	111974	11954	*	*	*	*
824	3	622	111974	11954	59	324	312	0
825	3	623	111974	11954	*	*	*	*
826	3	624	111974	11954	*	*	*	*
827	3	625	111974	11954	*	*	*	*
828	3	626	111974	11954	*	*	*	*
829	3	627	111974	11954	*	*	*	*
830	3	628	111974	11954	*	*	*	*
831	3	629	111974	11954	74	317	302	2
832	3	630	111974	11954	*	*	*	*
833	3	631	111974	11954	*	*	*	*
834	3	632	111974	11954	*	*	*	*
835	3	633	111974	11954	*	*	*	*
836	3	634	111974	11954	*	*	*	*
837	3	635	114865	11671	*	*	*	*
838	3	636	114865	11671	86	343	307	2
839	3	637	114865	11671	*	*	*	*
840	3	638	114865	11671	*	*	*	*
841	3	639	114865	11671	*	*	*	*
842	3	640	114865	11671	*	*	*	*
843	3	641	114865	11671	*	*	*	*
844	3	642	114865	11671	*	*	*	*
845	3	643	114865	11671	84	378	318	2
846	3	644	114865	11671	*	*	*	*
847	3	645	114865	11671	*	*	*	*
848	3	646	114865	11671	*	*	*	*
849	3	647	114865	11671	*	*	*	*
850	3	648	114865	11671	*	*	*	*
851	3	649	114865	11671	*	*	*	*
852	3	650	114865	11671	81	300	359	2
853	3	651	114865	11671	*	*	*	*
854	3	652	114865	11671	*	*	*	*
855	3	653	114865	11671	*	*	*	*
856	3	654	114865	11671	*	*	*	*
857	3	655	114865	11671	*	*	*	*
858	3	656	114865	11671	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
859	3	657	114865	11671	74	280	349	3
860	3	658	114865	11671	*	*	*	*
861	3	659	114865	11671	*	*	*	*
862	3	660	114865	11671	*	*	*	*
863	3	661	114865	11671	*	*	*	*
864	3	662	114865	11671	*	*	*	*
865	3	663	114865	11671	*	*	*	*
866	3	664	114865	11671	81	315	328	3
867	3	665	98499	11315	*	*	*	*
868	3	666	98499	11315	*	*	*	*
869	3	667	98499	11315	*	*	*	*
870	3	668	98499	11315	*	*	*	*
871	3	669	98499	11315	*	*	*	*
872	3	670	98499	11315	*	*	*	*
873	3	671	98499	11315	89	316	397	1
874	3	672	98499	11315	*	*	*	*
875	3	673	98499	11315	*	*	*	*
876	3	674	98499	11315	*	*	*	*
877	3	675	98499	11315	*	*	*	*
878	3	676	98499	11315	*	*	*	*
879	3	677	98499	11315	*	*	*	*
880	3	678	98499	11315	84	345	346	3
881	3	679	98499	11315	*	*	*	*
882	3	680	98499	11315	*	*	*	*
883	3	681	98499	11315	*	*	*	*
884	3	682	98499	11315	*	*	*	*
885	3	683	98499	11315	*	*	*	*
886	3	684	98499	11315	*	*	*	*
887	3	685	98499	11315	*	*	*	*
888	3	686	98499	11315	*	*	*	*
889	3	687	98499	11315	*	*	*	*
890	3	688	98499	11315	*	*	*	*
891	3	689	98499	11315	*	*	*	*
892	3	690	98499	11315	*	*	*	*
893	3	691	98499	11315	*	*	*	*
894	3	692	98499	11315	*	*	*	*
895	3	693	98499	11315	*	*	*	*
896	3	694	98499	11315	*	*	*	*
897	3	695	98499	11315	*	*	*	*
898	3	696	112093	11838	*	*	*	*
899	3	697	112093	11838	*	*	*	*
900	3	698	112093	11838	*	*	*	*
901	3	699	112093	11838	85	198	211	3
902	3	700	112093	11838	*	*	*	*
903	3	701	112093	11838	*	*	*	*
904	3	702	112093	11838	*	*	*	*
905	3	703	112093	11838	*	*	*	*
906	3	704	112093	11838	*	*	*	*
907	3	705	112093	11838	*	*	*	*
908	3	706	112093	11838	85	148	211	3
909	3	707	112093	11838	*	*	*	*
910	3	708	112093	11838	*	*	*	*
911	3	709	112093	11838	*	*	*	*
912	3	710	112093	11838	*	*	*	*
913	3	711	112093	11838	*	*	*	*
914	3	712	112093	11838	5	*	153	3
915	2	744	118006	12946	*	*	*	*
916	2	745	118006	12946	*	*	*	*
917	2	746	118006	12946	*	*	*	*
918	2	747	118006	12946	*	*	*	*
919	2	748	118006	12946	*	*	*	*
920	2	749	118006	12946	*	*	*	*
921	2	750	118006	12946	*	*	*	*
922	2	751	118006	12946	*	*	*	*
923	2	752	118006	12946	*	*	*	*
924	2	753	118006	12946	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
925	2	754	118006	12946	*	*	*	*
926	2	755	118006	12946	74	21	255	1
927	2	756	118006	12946	*	*	*	*
928	2	757	139120	13556	*	*	*	*
929	2	758	139120	13556	*	*	*	*
930	2	759	139120	13556	*	*	*	*
931	2	760	139120	13556	*	*	*	*
932	2	761	139120	13556	*	*	*	*
933	2	762	139120	13556	*	*	*	*
934	2	763	139120	13556	*	*	*	*
935	2	764	139120	13556	*	*	*	*
936	2	765	139120	13556	*	*	*	*
937	2	766	139120	13556	*	*	*	*
938	2	767	139120	13556	*	*	*	*
939	2	768	139120	13556	*	*	*	*
940	2	769	139120	13556	91	254	320	0
941	2	770	139120	13556	*	*	*	*
942	2	771	139120	13556	*	*	*	*
943	2	772	139120	13556	*	*	*	*
944	2	773	139120	13556	*	*	*	*
945	2	774	139120	13556	*	*	*	*
946	2	775	139120	13556	*	*	*	*
947	2	776	139120	13556	123	321	438	0
948	2	777	139120	13556	*	*	*	*
949	2	778	139120	13556	*	*	*	*
950	2	779	139120	13556	*	*	*	*
951	2	780	139120	13556	*	*	*	*
952	2	781	139120	13556	*	*	*	*
953	2	782	139120	13556	*	*	*	*
954	2	783	139120	13556	77	253	288	0
955	2	784	139120	13556	*	*	*	*
956	2	785	143637	13528	*	*	*	*
957	2	786	143637	13528	*	*	*	*
958	2	787	143637	13528	*	*	*	*
959	2	788	143637	13528	*	*	*	*
960	2	789	143637	13528	*	*	*	*
961	2	790	143637	13528	155	232	276	0
962	2	791	143637	13528	*	*	*	*
963	2	792	143637	13528	*	*	*	*
964	2	793	143637	13528	*	*	*	*
965	2	794	143637	13528	*	*	*	*
966	2	795	143637	13528	*	*	*	*
967	2	796	143637	13528	*	*	*	*
968	2	797	143637	13528	*	*	*	*
969	2	798	143637	13528	*	*	*	*
970	2	799	143637	13528	*	*	*	*
971	2	800	143637	13528	*	*	*	*
972	2	801	143637	13528	*	*	*	*
973	2	802	143637	13528	*	*	*	*
974	2	803	143637	13528	*	*	*	*
975	2	804	143637	13528	121	257	289	2
976	2	805	143637	13528	*	*	*	*
977	2	806	143637	13528	*	*	*	*
978	2	807	143637	13528	*	*	*	*
979	2	808	143637	13528	*	*	*	*
980	2	809	143637	13528	*	*	*	*
981	2	810	143637	13528	*	*	*	*
982	2	811	143637	13528	127	302	374	3
983	2	812	143637	13528	*	*	*	*
984	2	813	143637	13528	*	*	*	*
985	2	814	143637	13528	*	*	*	*
986	2	815	143637	13528	*	*	*	*
987	2	816	147203	14610	*	*	*	*
988	2	817	147203	14610	*	*	*	*
989	2	818	147203	14610	116	396	517	4
990	2	819	147203	14610	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
991	2	820	147283	14610	*	*	*	*
992	2	821	147283	14610	*	*	*	*
993	2	822	147283	14610	*	*	*	*
994	2	823	147283	14610	*	*	*	*
995	2	824	147283	14610	*	*	*	*
996	2	825	147283	14610	*	*	*	*
997	2	826	147283	14610	119	434	547	1
998	2	827	147283	14610	*	*	*	*
999	2	828	147283	14610	*	*	*	*
1000	2	829	147283	14610	*	*	*	*
1001	2	830	147283	14610	*	*	*	*
1002	2	831	147283	14610	*	*	*	*
1003	2	832	147283	14610	*	*	*	*
1004	2	833	147283	14610	123	405	522	*
1005	2	834	147283	14610	*	*	*	*
1006	2	835	147283	14610	*	*	*	*
1007	2	836	147283	14610	*	*	*	*
1008	2	837	147283	14610	*	*	*	*
1009	2	838	147283	14610	*	*	*	*
1010	2	839	147283	14610	*	*	*	2
1011	2	840	147283	14610	119	384	434	*
1012	2	841	147283	14610	*	*	*	*
1013	2	842	147283	14610	*	*	*	*
1014	2	843	147283	14610	*	*	*	*
1015	2	844	147283	14610	*	*	*	*
1016	2	845	147283	14610	*	*	*	*
1017	2	846	147283	14610	*	*	*	0
1018	2	847	145930	14692	127	419	489	*
1019	2	848	145930	14692	*	*	*	*
1020	2	849	145930	14692	*	*	*	*
1021	2	850	145930	14692	*	*	*	*
1022	2	851	145930	14692	*	*	*	*
1023	2	852	145930	14692	*	*	*	*
1024	2	853	145930	14692	*	*	*	2
1025	2	854	145930	14692	153	473	541	*
1026	2	855	145930	14692	*	*	*	*
1027	2	856	145930	14692	*	*	*	*
1028	2	857	145930	14692	*	*	*	*
1029	2	858	145930	14692	*	*	*	*
1030	2	859	145930	14692	*	*	*	*
1031	2	860	145930	14692	*	*	*	2
1032	2	861	145930	14692	156	405	438	*
1033	2	862	145930	14692	*	*	*	*
1034	2	863	145930	14692	*	*	*	*
1035	2	864	145930	14692	*	*	*	*
1036	2	865	145930	14692	*	*	*	*
1037	2	866	145930	14692	*	*	*	*
1038	2	867	145930	14692	*	*	*	1
1039	2	868	145930	14692	156	323	333	*
1040	2	869	145930	14692	*	*	*	*
1041	2	870	145930	14692	*	*	*	*
1042	2	871	145930	14692	*	*	*	*
1043	2	872	145930	14692	*	*	*	*
1044	2	873	145930	14692	*	*	*	*
1045	2	874	145930	14692	*	*	*	1
1046	2	875	145930	14692	152	398	440	*
1047	2	876	145930	14692	*	*	*	*
1048	2	877	148792	14324	*	*	*	*
1049	2	878	148792	14324	*	*	*	*
1050	2	879	148792	14324	*	*	*	*
1051	2	880	148792	14324	*	*	*	*
1052	2	881	148792	14324	*	*	*	0
1053	2	882	148792	14324	169	459	525	*
1054	2	883	148792	14324	*	*	*	*
1055	2	884	148792	14324	*	*	*	*
1056	2	885	148792	14324	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAMP	TotalAMP	AMPRqns	BrdwBchs
1057	2	886	148792	14324	*	*	*	*
1058	2	887	148792	14324	*	*	*	0
1059	2	888	148792	14324	161	369	562	*
1060	2	889	148792	14324	*	*	*	*
1061	2	890	148792	14324	*	*	*	*
1062	2	891	148792	14324	*	*	*	*
1063	2	892	148792	14324	*	*	*	*
1064	2	893	148792	14324	*	*	*	*
1065	2	894	148792	14324	*	*	*	*
1066	2	895	148792	14324	*	*	*	*
1067	2	896	148792	14324	*	*	*	*
1068	2	897	148792	14324	*	*	*	*
1069	2	898	148792	14324	*	*	*	*
1070	2	899	148792	14324	*	*	*	*
1071	2	900	148792	14324	*	*	*	*
1072	2	901	148792	14324	*	*	*	0
1073	2	902	148792	14324	140	444	518	*
1074	2	903	148792	14324	*	*	*	*
1075	2	904	148792	14324	*	*	*	*
1076	2	905	148792	14324	*	*	*	*
1077	2	906	148792	14324	*	*	*	*
1078	2	907	148792	14324	*	*	*	*
1079	2	908	142455	13491	*	*	*	*
1080	2	909	142455	13491	145	460	493	*
1081	2	910	142455	13491	*	*	*	*
1082	2	911	142455	13491	*	*	*	*
1083	2	912	142455	13491	*	*	*	*
1084	2	913	142455	13491	*	*	*	*
1085	2	914	142455	13491	*	*	*	*
1086	2	915	142455	13491	*	*	*	0
1087	2	916	142455	13491	148	484	542	*
1088	2	917	142455	13491	*	*	*	*
1089	2	918	142455	13491	*	*	*	*
1090	2	919	142455	13491	*	*	*	*
1091	2	920	142455	13491	*	*	*	*
1092	2	921	142455	13491	*	*	*	*
1093	2	922	142455	13491	*	*	*	0
1094	2	923	142455	13491	142	487	588	*
1095	2	924	142455	13491	*	*	*	*
1096	2	925	142455	13491	*	*	*	*
1097	2	926	142455	13491	*	*	*	*
1098	2	927	142455	13491	*	*	*	*
1099	2	928	142455	13491	*	*	*	*
1100	2	929	142455	13491	*	*	*	0
1101	2	930	142455	13491	145	350	365	*
1102	2	931	142455	13491	*	*	*	*
1103	2	932	142455	13491	*	*	*	*
1104	2	933	142455	13491	*	*	*	*
1105	2	934	142455	13491	*	*	*	*
1106	2	935	142455	13491	*	*	*	*
1107	2	936	142455	13491	*	*	*	0
1108	2	937	142455	13491	115	364	378	*
1109	2	938	149887	12949	*	*	*	*
1110	2	939	149887	12949	*	*	*	*
1111	2	940	149887	12949	*	*	*	*
1112	2	941	149887	12949	*	*	*	*
1113	2	942	149887	12949	*	*	*	*
1114	2	943	149887	12949	*	*	*	*
1115	2	944	149887	12949	113	285	*	*
1116	2	945	149887	12949	*	*	*	*
1117	2	946	149887	12949	*	*	*	*
1118	2	947	149887	12949	*	*	*	*
1119	2	948	149887	12949	*	*	*	*
1120	2	949	149887	12949	8	44	57	*
1121	1	955	134731	14438	*	*	*	*
1122	1	956	134731	14438	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAHP	TotalAHP	AHPRqns	BrdwBchs
1123	1	957	134731	14438	*	*	*	*
1124	1	958	134731	14438	*	*	*	*
1125	1	959	134731	14438	12	93	140	4
1126	1	960	134731	14438	*	*	*	*
1127	1	961	134731	14438	*	*	*	*
1128	1	962	134731	14438	*	*	*	*
1129	1	963	134731	14438	*	*	*	*
1130	1	964	134731	14438	*	*	*	*
1131	1	965	134731	14438	*	*	*	*
1132	1	966	134731	14438	22	198	259	8
1133	1	967	134731	14438	*	*	*	*
1134	1	968	134731	14438	*	*	*	*
1135	1	969	138511	14934	*	*	*	*
1136	1	970	138511	14934	*	*	*	*
1137	1	971	138511	14934	*	*	*	*
1138	1	972	138511	14934	*	*	*	*
1139	1	973	138511	14934	*	*	*	*
1140	1	974	138511	14934	25	218	261	8
1141	1	975	138511	14934	*	*	*	*
1142	1	976	138511	14934	*	*	*	*
1143	1	977	138511	14934	*	*	*	*
1144	1	978	138511	14934	*	*	*	*
1145	1	979	138511	14934	*	*	*	*
1146	1	980	138511	14934	*	*	*	*
1147	1	981	138511	14934	*	*	*	*
1148	1	982	138511	14934	41	250	289	7
1149	1	983	138511	14934	*	*	*	*
1150	1	984	138511	14934	*	*	*	*
1151	1	985	138511	14934	*	*	*	*
1152	1	986	138511	14934	*	*	*	*
1153	1	987	138511	14934	42	291	305	7
1154	1	988	138511	14934	*	*	*	*
1155	1	989	138511	14934	*	*	*	*
1156	1	990	138511	14934	*	*	*	*
1157	1	991	138511	14934	*	*	*	*
1158	1	992	138511	14934	*	*	*	*
1159	1	993	138511	14934	*	*	*	*
1160	1	994	138511	14934	63	295	291	8
1161	1	995	138511	14934	*	*	*	*
1162	1	996	138511	14934	*	*	*	*
1163	1	997	138511	14934	*	*	*	*
1164	1	998	138511	14934	*	*	*	*
1165	1	999	138511	14934	*	*	*	*
1166	1	1000	135610	14845	*	*	*	*
1167	1	1001	135610	14845	*	*	*	*
1168	1	1002	135610	14845	62	303	289	4
1169	1	1003	135610	14845	*	*	*	*
1170	1	1004	135610	14845	*	*	*	*
1171	1	1005	135610	14845	*	*	*	*
1172	1	1006	135610	14845	*	*	*	*
1173	1	1007	135610	14845	*	*	*	*
1174	1	1008	135610	14845	64	327	308	5
1175	1	1009	135610	14845	*	*	*	*
1176	1	1010	135610	14845	*	*	*	*
1177	1	1011	135610	14845	*	*	*	*
1178	1	1012	135610	14845	*	*	*	*
1179	1	1013	135610	14845	*	*	*	*
1180	1	1014	135610	14845	*	*	*	*
1181	1	1015	135610	14845	68	351	368	4
1182	1	1016	135610	14845	*	*	*	*
1183	1	1017	135610	14845	*	*	*	*
1184	1	1018	135610	14845	*	*	*	*
1185	1	1019	135610	14845	*	*	*	*
1186	1	1020	135610	14845	*	*	*	*
1187	1	1021	135610	14845	*	*	*	*
1188	1	1022	135610	14845	69	408	451	1

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAWP	TotalAWP	AWPRqns	BrdwBchs
1189	1	1023	135610	14845	*	*	*	*
1190	1	1024	135610	14845	*	*	*	*
1191	1	1025	135610	14845	*	*	*	*
1192	1	1026	135610	14845	*	*	*	*
1193	1	1027	135610	14845	*	*	*	*
1194	1	1028	135610	14845	*	*	*	*
1195	1	1029	135610	14845	*	*	*	*
1196	1	1030	138713	15378	*	*	*	*
1197	1	1031	138713	15378	*	*	*	*
1198	1	1032	138713	15378	*	*	*	*
1199	1	1033	138713	15378	*	*	*	*
1200	1	1034	138713	15378	*	*	*	*
1201	1	1035	138713	15378	*	*	*	*
1202	1	1036	138713	15378	81	432	495	2
1203	1	1037	138713	15378	*	*	*	*
1204	1	1038	138713	15378	*	*	*	*
1205	1	1039	138713	15378	*	*	*	*
1206	1	1040	138713	15378	*	*	*	*
1207	1	1041	138713	15378	*	*	*	*
1208	1	1042	138713	15378	*	*	*	*
1209	1	1043	138713	15378	83	492	438	5
1210	1	1044	138713	15378	*	*	*	*
1211	1	1045	138713	15378	*	*	*	*
1212	1	1046	138713	15378	*	*	*	*
1213	1	1047	138713	15378	*	*	*	*
1214	1	1048	138713	15378	*	*	*	*
1215	1	1049	138713	15378	*	*	*	*
1216	1	1050	138713	15378	86	349	367	3
1217	1	1051	138713	15378	*	*	*	*
1218	1	1052	138713	15378	*	*	*	*
1219	1	1053	138713	15378	*	*	*	*
1220	1	1054	138713	15378	*	*	*	*
1221	1	1055	138713	15378	*	*	*	*
1222	1	1056	138713	15378	*	*	*	*
1223	1	1057	138713	15378	77	285	261	*
1224	1	1058	138713	15378	*	*	*	*
1225	1	1059	138713	15378	*	*	*	*
1226	1	1060	138713	15378	*	*	*	*
1227	1	1061	138392	15317	*	*	*	*
1228	1	1062	138392	15317	*	*	*	*
1229	1	1063	138392	15317	*	*	*	*
1230	1	1064	138392	15317	78	322	320	0
1231	1	1065	138392	15317	*	*	*	*
1232	1	1066	138392	15317	*	*	*	*
1233	1	1067	138392	15317	*	*	*	*
1234	1	1068	133392	15317	*	*	*	*
1235	1	1069	138392	15317	*	*	*	*
1236	1	1070	138392	15317	*	*	*	*
1237	1	1071	138392	15317	76	407	385	4
1238	1	1072	138392	15317	*	*	*	*
1239	1	1073	138392	15317	*	*	*	*
1240	1	1074	138392	15317	*	*	*	*
1241	1	1075	138392	15317	*	*	*	*
1242	1	1076	138392	15317	*	*	*	*
1243	1	1077	138392	15317	*	*	*	*
1244	1	1078	138392	15317	75	445	447	4
1245	1	1079	138392	15317	*	*	*	*
1246	1	1080	138392	15317	*	*	*	*
1247	1	1081	138392	15317	*	*	*	*
1248	1	1082	138392	15317	*	*	*	*
1249	1	1083	138392	15317	*	*	*	*
1250	1	1084	138392	15317	*	*	*	*
1251	1	1085	138392	15317	73	536	543	4
1252	1	1086	138392	15317	*	*	*	*
1253	1	1087	138392	15317	*	*	*	*
1254	1	1088	138392	15317	*	*	*	*

ROW	CV NBR	DateIndx	7RInvst	1RInvst	PoolAHP	TotalAHP	AHPRqns	BrdwBchs
1255	1	1089	138392	15317	*	*	*	*
1256	1	1090	138392	15317	*	*	*	*
1257	1	1091	138392	15317	*	*	*	*
1258	1	1092	138392	15317	68	408	348	6
1259	1	1093	138392	15317	*	*	*	*
1260	1	1094	138392	15317	*	*	*	*

RCW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range197	RO197	Inducts
1	53.76	67.14	92.00	84.00	*	*	*	115.68
2	53.76	67.14	92.00	84.00	*	*	*	115.68
3	53.76	67.14	92.00	84.00	*	*	*	115.68
4	53.76	67.14	92.00	84.00	*	*	*	115.68
5	53.76	67.14	92.00	84.00	*	*	*	115.68
6	53.76	67.14	92.00	84.00	*	*	*	115.68
7	53.76	67.14	92.00	84.00	*	*	*	115.68
8	53.76	67.14	92.00	84.00	*	*	*	115.68
9	53.76	67.14	92.00	84.00	*	*	*	115.68
10	53.76	67.14	92.00	84.00	*	*	*	115.68
11	53.76	67.14	92.00	84.00	*	*	*	115.68
12	53.76	67.14	92.00	84.00	*	*	*	115.68
13	53.76	67.14	92.00	84.00	*	*	*	115.68
14	53.76	67.14	92.00	84.00	*	*	*	115.68
15	53.76	67.14	92.00	84.00	*	*	*	115.68
16	53.76	67.14	92.00	84.00	*	*	*	115.68
17	53.76	67.14	92.00	84.00	*	*	*	115.68
18	53.76	67.14	92.00	84.00	*	*	*	115.68
19	53.76	67.14	92.00	84.00	*	*	*	115.68
20	53.76	67.14	92.00	84.00	*	*	*	115.68
21	53.76	67.14	92.00	84.00	*	*	*	115.68
22	53.76	67.14	92.00	84.00	59999	86.00	82.00	115.68
23	53.76	67.14	92.00	85.00	*	*	*	103.25
24	229.36	26.00	94.00	85.00	*	*	*	103.25
25	229.36	26.00	94.00	85.00	*	*	*	103.25
26	229.36	26.00	94.00	85.00	*	*	*	103.25
27	229.36	26.00	94.00	85.00	*	*	*	103.25
28	229.36	26.00	94.00	85.00	*	*	*	103.25
29	229.36	26.00	94.00	85.00	*	*	*	103.25
30	229.36	26.00	94.00	85.00	*	*	*	103.25
31	229.36	26.00	94.00	85.00	*	*	*	103.25
32	229.36	26.00	95.10	85.00	*	*	*	103.25
33	229.36	26.00	95.10	85.00	*	*	*	103.25
34	229.36	26.00	95.10	85.00	*	*	*	103.25
35	229.36	26.00	95.10	85.00	*	*	*	103.25
36	229.36	26.00	95.10	85.00	*	*	*	103.25
37	229.36	26.00	95.10	85.00	*	*	*	103.25
38	229.36	26.00	95.10	85.00	*	*	*	103.25
39	229.36	26.00	95.10	85.00	*	*	*	103.25
40	229.36	26.00	95.10	85.00	*	*	*	103.25
41	229.36	26.00	95.10	85.00	*	*	*	103.25
42	229.36	26.00	95.10	85.00	*	*	*	103.25
43	229.36	26.00	95.10	85.00	*	*	*	103.25
44	229.36	26.00	95.10	85.00	*	*	*	103.25
45	229.36	26.00	95.10	85.00	*	*	*	103.25
46	229.36	26.00	95.10	85.00	*	*	*	103.25
47	229.36	26.00	95.10	85.00	*	*	*	103.25
48	229.36	26.00	95.10	85.00	*	*	*	103.25
49	229.36	26.00	95.10	85.00	*	*	*	103.25
50	229.36	26.00	95.10	85.00	59879	87.00	83.00	103.25
51	229.36	26.00	95.10	88.81	*	*	*	118.83
52	128.80	34.29	95.10	88.81	*	*	*	118.83
53	128.80	34.29	95.10	88.81	*	*	*	118.83
54	128.80	34.29	95.10	88.81	*	*	*	118.83
55	128.80	34.29	95.10	88.81	*	*	*	118.83
56	128.80	34.29	95.10	88.81	*	*	*	118.83
57	128.80	34.29	95.10	88.81	*	*	*	118.83
58	128.80	34.29	95.10	88.81	*	*	*	118.83
59	128.80	34.29	95.10	88.81	*	*	*	118.83
60	128.80	34.29	95.10	88.81	*	*	*	118.83
61	128.80	34.29	95.10	88.81	*	*	*	118.83
62	128.80	34.29	95.10	88.81	*	*	*	118.83
63	128.80	34.29	95.10	88.81	*	*	*	118.83
64	128.80	34.29	95.10	88.81	*	*	*	118.83
65	128.80	34.29	95.10	88.81	*	*	*	118.83

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range198	RO198	Inducts
66	128.80	34.29	95.10	88.81	*	*	*	118.83
67	128.80	34.29	94.83	88.81	*	*	*	118.83
68	128.80	34.29	94.83	88.81	*	*	*	118.83
69	128.80	34.29	94.83	88.81	*	*	*	118.83
70	128.80	34.29	94.83	88.81	*	*	*	118.83
71	128.80	34.29	94.83	88.81	*	*	*	118.83
72	128.80	34.29	94.83	88.81	*	*	*	118.83
73	128.80	34.29	94.83	88.81	*	*	*	118.83
74	128.80	34.29	94.83	88.81	*	*	*	118.83
75	128.80	34.29	94.83	88.81	*	*	*	118.83
76	128.80	34.29	94.83	88.81	*	*	*	118.83
77	128.80	34.29	94.83	88.81	*	*	*	118.83
78	128.80	34.29	94.83	88.81	*	*	*	118.83
79	128.80	34.29	94.83	88.81	*	*	*	118.83
80	128.80	34.29	94.83	88.81	*	*	*	118.83
81	128.80	34.29	94.83	88.81	*	*	*	118.83
82	128.80	34.29	94.83	88.81	*	*	*	118.83
83	128.80	34.29	94.83	88.81	*	*	*	118.83
84	128.80	34.29	94.83	88.81	*	*	*	118.83
85	128.80	34.29	94.83	88.81	*	*	*	118.83
86	128.80	34.29	94.83	88.83	60162	88.63	84.31	165.93
87	236.96	44.39	94.83	88.83	*	*	*	165.93
88	236.96	44.39	94.83	88.83	*	*	*	165.93
89	236.96	44.39	94.83	88.83	*	*	*	165.93
90	236.96	44.39	94.83	88.83	*	*	*	165.93
91	236.96	44.39	94.83	88.83	*	*	*	165.93
92	236.96	44.39	94.83	88.83	*	*	*	165.93
93	236.96	44.39	94.83	88.83	*	*	*	165.93
94	236.96	44.39	94.83	88.83	*	*	*	165.93
95	236.96	44.39	96.41	88.83	*	*	*	165.93
96	236.96	44.39	96.41	88.83	*	*	*	165.93
97	236.96	44.39	96.41	88.83	*	*	*	165.93
98	236.96	44.39	96.41	88.83	*	*	*	165.93
99	236.96	44.39	96.41	88.83	*	*	*	165.93
100	236.96	44.39	96.41	88.83	*	*	*	165.93
101	236.96	44.39	96.41	88.83	*	*	*	165.93
102	236.96	44.39	96.41	88.83	*	*	*	165.93
103	236.96	44.39	96.41	88.83	*	*	*	165.93
104	236.96	44.39	96.41	88.83	*	*	*	165.93
105	236.96	44.39	96.41	88.83	*	*	*	165.93
106	236.96	44.39	96.41	88.83	*	*	*	165.93
107	236.96	44.39	96.41	88.83	*	*	*	165.93
108	236.96	44.39	96.41	88.83	*	*	*	165.93
109	236.96	44.39	96.41	88.83	*	*	*	165.93
110	236.96	44.39	96.41	88.83	*	*	*	165.93
111	236.96	44.39	96.41	88.83	*	*	*	165.93
112	236.96	44.39	96.41	88.83	*	*	*	165.93
113	236.96	44.39	96.41	88.83	*	*	*	165.93
114	236.96	44.39	96.41	89.52	60011	89.20	85.42	180.68
115	240.36	48.57	96.41	89.52	*	*	*	180.68
116	240.36	48.57	96.41	89.52	*	*	*	180.68
117	240.36	48.57	96.41	89.52	*	*	*	180.68
118	240.36	48.57	96.41	89.52	*	*	*	180.68
119	240.36	48.57	96.41	89.52	*	*	*	180.68
120	240.36	48.57	96.41	89.52	*	*	*	180.68
121	240.36	48.57	96.41	89.52	*	*	*	180.68
122	240.36	48.57	96.41	89.52	*	*	*	180.68
123	240.36	48.57	94.00	89.52	*	*	*	180.68
124	240.36	48.57	94.00	89.52	*	*	*	180.68
125	240.36	48.57	94.00	89.52	*	*	*	180.68
126	240.36	48.57	94.00	89.52	*	*	*	180.68
127	240.36	48.57	94.00	89.52	*	*	*	180.68
128	240.36	48.57	94.00	89.52	*	*	*	180.68
129	240.36	48.57	94.00	89.52	*	*	*	180.68
130	240.36	48.57	94.00	89.52	*	*	*	180.68
131	240.36	48.57	94.00	89.52	*	*	*	180.68

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range199	RO199	Inducts
132	240.36	48.57	94.00	89.52	*	*	*	180.68
133	240.36	48.57	94.00	89.52	*	*	*	180.68
134	240.36	48.57	94.00	89.52	*	*	*	180.68
135	240.36	48.57	94.00	89.52	*	*	*	180.68
136	240.36	48.57	94.00	89.52	*	*	*	180.68
137	240.36	48.57	94.00	89.52	*	*	*	180.68
138	240.36	48.57	94.00	89.52	*	*	*	180.68
139	240.36	48.57	94.00	89.52	*	*	*	180.68
140	240.36	48.57	94.00	89.52	*	*	*	180.68
141	240.36	48.57	94.00	89.52	61214	89.35	85.15	180.68
142	240.36	48.57	94.00	88.00	*	*	*	112.43
143	186.34	31.23	94.00	88.00	*	*	*	112.43
144	186.34	31.23	94.00	88.00	*	*	*	112.43
145	186.34	31.23	94.00	88.00	*	*	*	112.43
146	186.34	31.23	94.00	88.00	*	*	*	112.43
147	186.34	31.23	94.00	88.00	*	*	*	112.43
148	186.34	31.23	94.00	88.00	*	*	*	112.43
149	186.34	31.23	94.00	88.00	*	*	*	112.43
150	186.34	31.23	94.00	88.00	*	*	*	112.43
151	186.34	31.23	94.00	88.00	*	*	*	112.43
152	186.34	31.23	94.00	88.00	*	*	*	112.43
153	186.34	31.23	94.00	88.00	*	*	*	112.43
154	186.34	31.23	94.00	88.00	*	*	*	112.43
155	186.34	31.23	94.00	88.00	*	*	*	112.43
156	186.34	31.23	94.00	88.00	*	*	*	112.43
157	186.34	31.23	94.00	88.00	*	*	*	112.43
158	186.34	31.23	*	88.00	*	*	*	112.43
159	186.34	31.23	*	88.00	*	*	*	112.43
160	186.34	31.23	*	88.00	*	*	*	112.43
161	186.34	31.23	*	88.00	*	*	*	112.43
162	186.34	31.23	*	88.00	*	*	*	112.43
163	186.34	31.23	*	88.00	*	*	*	112.43
164	186.34	31.23	*	88.00	*	*	*	112.43
165	186.34	31.23	*	88.00	*	*	*	112.43
166	186.34	31.23	*	88.00	*	*	*	112.43
167	186.34	31.23	*	88.00	*	*	*	112.43
168	186.34	31.23	*	88.00	*	*	*	112.43
169	186.34	31.23	*	88.00	*	*	*	112.43
170	186.34	31.23	*	88.00	*	*	*	112.43
171	186.34	31.23	*	88.00	*	*	*	112.43
172	186.34	31.23	*	88.00	*	*	*	112.43
173	186.34	31.23	*	88.00	*	*	*	112.43
174	186.34	31.23	*	88.00	*	*	*	112.43
175	186.34	31.23	*	88.00	*	*	*	112.43
176	186.34	31.23	*	88.00	61135	90.36	86.68	112.43
177	186.34	31.23	*	*	*	*	*	*
178	*	*	*	*	*	*	*	*
179	*	*	*	*	*	*	*	*
180	*	*	*	*	*	*	*	*
181	*	*	*	*	*	*	*	*
182	*	*	*	*	*	*	*	*
183	*	*	*	*	*	*	*	*
184	*	*	*	*	*	*	*	*
185	*	*	*	*	*	*	*	*
186	*	*	*	*	*	*	*	*
187	*	*	*	*	*	*	*	*
188	*	*	*	*	*	*	*	*
189	*	*	*	*	*	*	*	*
190	*	*	*	*	*	*	*	*
191	*	*	*	*	*	*	*	*
192	*	*	*	*	*	*	*	*
193	43.60	2.43	92.00	82.00	*	*	*	23.57
194	43.60	2.43	92.00	82.00	*	*	*	23.57
195	43.60	2.43	92.00	82.00	*	*	*	23.57
196	43.60	2.43	92.00	82.00	*	*	*	23.57
197	43.60	2.43	92.00	82.00	*	*	*	23.57

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range200	RO200	Inducts
198	43.60	2.43	92.00	82.00	*	*	*	23.57
199	43.60	2.43	92.00	82.00	*	*	*	23.57
200	43.60	2.43	92.00	82.00	68007	89.00	98.00	23.57
201	152.46	56.71	91.00	80.00	*	*	*	156.14
202	152.46	56.71	91.00	80.00	*	*	*	156.14
203	152.46	56.71	91.00	80.00	*	*	*	156.14
204	152.46	56.71	91.00	80.00	*	*	*	156.14
205	152.46	56.71	91.00	80.00	*	*	*	156.14
206	152.46	56.71	91.00	80.00	*	*	*	156.14
207	152.46	56.71	91.00	80.00	*	*	*	156.14
208	152.46	56.71	91.00	80.00	*	*	*	156.14
209	152.46	56.71	91.00	80.00	*	*	*	156.14
210	152.46	56.71	91.00	80.00	*	*	*	156.14
211	152.46	56.71	91.00	80.00	*	*	*	156.14
212	152.46	56.71	91.00	80.00	*	*	*	156.14
213	152.46	56.71	91.00	80.00	*	*	*	156.14
214	152.46	56.71	91.00	80.00	*	*	*	156.14
215	152.46	56.71	91.00	80.00	*	*	*	156.14
216	152.46	56.71	91.00	80.00	*	*	*	156.14
217	152.46	56.71	91.00	80.00	*	*	*	156.14
218	152.46	56.71	91.00	80.00	*	*	*	156.14
219	152.46	56.71	91.00	80.00	*	*	*	156.14
220	152.46	56.71	91.00	80.00	*	*	*	156.14
221	152.46	56.71	91.00	80.00	*	*	*	156.14
222	152.46	56.71	91.00	80.00	*	*	*	156.14
223	152.46	56.71	91.00	80.00	*	*	*	156.14
224	152.46	56.71	91.00	80.00	*	*	*	156.14
225	152.46	56.71	91.00	80.00	*	*	*	156.14
226	152.46	56.71	91.00	80.00	*	*	*	156.14
227	152.46	56.71	91.00	80.00	*	*	*	156.14
228	152.46	56.71	91.00	80.00	68105	91.00	96.00	156.14
229	240.43	39.92	97.00	82.00	*	*	*	132.68
230	240.43	39.92	97.00	82.00	*	*	*	132.68
231	240.43	39.92	97.00	82.00	*	*	*	132.68
232	240.43	39.92	97.00	82.00	*	*	*	132.68
233	240.43	39.92	97.00	82.00	*	*	*	132.68
234	240.43	39.92	97.00	82.00	*	*	*	132.68
235	240.43	39.92	97.00	82.00	*	*	*	132.68
236	240.43	39.92	97.00	82.00	*	*	*	132.68
237	240.43	39.92	97.00	82.00	*	*	*	132.68
238	240.43	39.92	97.00	82.00	*	*	*	132.68
239	240.43	39.92	97.00	82.00	*	*	*	132.68
240	240.43	39.92	97.00	82.00	*	*	*	132.68
241	240.43	39.92	97.00	82.00	*	*	*	132.68
242	240.43	39.92	97.00	82.00	*	*	*	132.68
243	240.43	39.92	97.00	82.00	*	*	*	132.68
244	240.43	39.92	97.00	82.00	*	*	*	132.68
245	240.43	39.92	97.00	82.00	*	*	*	132.68
246	240.43	39.92	97.00	82.00	*	*	*	132.68
247	240.43	39.92	97.00	82.00	*	*	*	132.68
248	240.43	39.92	97.00	82.00	*	*	*	132.68
249	240.43	39.92	97.00	82.00	*	*	*	132.68
250	240.43	39.92	97.00	82.00	*	*	*	132.68
251	240.43	39.92	97.00	82.00	*	*	*	132.68
252	240.43	39.92	97.00	82.00	*	*	*	132.68
253	240.43	39.92	97.00	82.00	*	*	*	132.68
254	240.43	39.92	97.00	82.00	*	*	*	132.68
255	240.43	39.92	97.00	82.00	*	*	*	132.68
256	240.43	39.92	97.00	82.00	71557	89.00	97.00	132.68
257	197.77	45.14	88.40	76.80	*	*	*	145.34
258	197.77	45.14	88.40	76.80	*	*	*	145.34
259	197.77	45.14	88.40	76.80	*	*	*	145.34
260	197.77	45.14	88.40	76.80	*	*	*	145.34
261	197.77	45.14	88.40	76.80	*	*	*	145.34
262	197.77	45.14	88.40	76.80	*	*	*	145.34
263	197.77	45.14	88.40	76.80	*	*	*	145.34

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range201	RO201	Inducts
264	197.77	45.14	88.40	76.80	*	*	*	145.34
265	197.77	45.14	88.40	76.80	*	*	*	145.34
266	197.77	45.14	88.40	76.80	*	*	*	145.34
267	197.77	45.14	88.40	76.80	*	*	*	145.34
268	197.77	45.14	88.40	76.80	*	*	*	145.34
269	197.77	45.14	88.40	76.80	*	*	*	145.34
270	197.77	45.14	88.40	76.80	*	*	*	145.34
271	197.77	45.14	88.40	76.80	*	*	*	145.34
272	197.77	45.14	88.40	76.80	*	*	*	145.34
273	197.77	45.14	88.40	76.80	*	*	*	145.34
274	197.77	45.14	88.40	76.80	*	*	*	145.34
275	197.77	45.14	88.40	76.80	*	*	*	145.34
276	197.77	45.14	88.40	76.80	*	*	*	145.34
277	197.77	45.14	88.40	76.80	*	*	*	145.34
278	197.77	45.14	88.40	76.80	*	*	*	145.34
279	197.77	45.14	88.40	76.80	*	*	*	145.34
280	197.77	45.14	88.40	76.80	*	*	*	145.34
281	197.77	45.14	88.40	76.80	*	*	*	145.34
282	197.77	45.14	88.40	76.80	*	*	*	145.34
283	197.77	45.14	88.40	76.80	*	*	*	145.34
284	197.77	45.14	88.40	76.80	*	*	*	145.34
285	197.77	45.14	88.40	76.80	*	*	*	145.34
286	197.77	45.14	88.40	76.80	*	*	*	145.34
287	197.77	45.14	88.40	76.80	*	*	*	145.34
288	197.77	45.14	88.40	76.80	*	*	*	145.34
289	197.77	45.14	88.40	76.80	*	*	*	145.34
290	197.77	45.14	88.40	76.80	*	*	*	145.34
291	197.77	45.14	88.40	76.80	68910	91.50	88.00	145.34
292	364.53	60.29	86.00	77.00	*	*	*	*
293	364.53	60.29	86.00	77.00	*	*	*	*
294	364.53	60.29	86.00	77.00	*	*	*	*
295	364.53	60.29	86.00	77.00	*	*	*	*
296	364.53	60.29	86.00	77.00	*	*	*	*
297	364.53	60.29	86.00	77.00	*	*	*	*
298	364.53	60.29	86.00	77.00	*	*	*	*
299	364.53	60.29	86.00	77.00	*	*	*	*
300	364.53	60.29	86.00	77.00	*	*	*	*
301	364.53	60.29	86.00	77.00	*	*	*	*
302	364.53	60.29	86.00	77.00	*	*	*	*
303	364.53	60.29	86.00	77.00	*	*	*	*
304	364.53	60.29	86.00	77.00	*	*	*	*
305	364.53	60.29	86.00	77.00	*	*	*	*
306	364.53	60.29	86.00	77.00	*	*	*	*
307	364.53	60.29	86.00	77.00	*	*	*	*
308	364.53	60.29	86.00	77.00	*	*	*	*
309	364.53	60.29	86.00	77.00	*	*	*	*
310	364.53	60.29	86.00	77.00	*	*	*	*
311	364.53	60.29	86.00	77.00	*	*	*	*
312	364.53	60.29	86.00	77.00	*	*	*	*
313	364.53	60.29	86.00	77.00	*	*	*	*
314	364.53	60.29	86.00	77.00	*	*	*	*
315	364.53	60.29	86.00	77.00	*	*	*	*
316	364.53	60.29	86.00	77.00	*	*	*	*
317	364.53	60.29	86.00	77.00	*	*	*	*
318	364.53	60.29	86.00	77.00	*	*	*	*
319	364.53	60.29	86.00	77.00	70938	92.00	96.70	*
320	297.97	45.60	88.00	78.00	*	*	*	165.31
321	297.97	45.60	88.00	78.00	*	*	*	165.31
322	297.97	45.60	88.00	78.00	*	*	*	165.31
323	297.97	45.60	88.00	78.00	*	*	*	165.31
324	297.97	45.60	88.00	78.00	*	*	*	165.31
325	297.97	45.40	88.00	78.00	*	*	*	165.31
326	297.97	45.60	88.00	78.00	*	*	*	165.31
327	297.97	45.60	88.00	78.00	*	*	*	165.31
328	297.97	45.60	88.00	78.00	*	*	*	165.31
329	297.97	45.60	88.00	78.00	*	*	*	165.31

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range202	RO202	Inducts
330	297.97	45.60	88.00	78.00	*	*	*	165.31
331	297.97	45.60	88.00	78.00	*	*	*	165.31
332	297.97	45.60	88.00	78.00	*	*	*	165.31
333	297.97	45.60	88.00	78.00	*	*	*	165.31
334	297.97	45.60	88.00	78.00	*	*	*	165.31
335	297.97	45.60	88.00	78.00	*	*	*	165.31
336	297.97	45.60	88.00	78.00	*	*	*	165.31
337	297.97	45.60	88.00	78.00	*	*	*	165.31
338	297.97	45.60	88.00	78.00	*	*	*	165.31
339	297.97	45.60	88.00	78.00	*	*	*	165.31
340	297.97	45.60	88.00	78.00	*	*	*	165.31
341	297.97	45.60	88.00	78.00	*	*	*	165.31
342	297.97	45.60	88.00	78.00	*	*	*	165.31
343	297.97	45.60	88.00	78.00	*	*	*	165.31
344	297.97	45.60	88.00	78.00	*	*	*	165.31
345	297.97	45.60	88.00	78.00	*	*	*	165.31
346	297.97	45.60	88.00	78.00	*	*	*	165.31
347	297.97	45.60	88.00	78.00	*	*	*	165.31
348	297.97	45.60	88.00	78.00	*	*	*	165.31
349	297.97	45.60	88.00	78.00	*	*	*	165.31
350	297.97	45.60	88.00	78.00	*	*	*	165.31
351	297.97	45.60	88.00	78.00	*	*	*	165.31
352	297.97	45.60	88.00	78.00	*	*	*	165.31
353	297.97	45.60	88.00	78.00	*	*	*	165.31
354	297.97	45.60	88.00	78.00	68202	92.00	95.00	165.31
355	237.61	44.25	87.00	77.00	*	*	*	145.96
356	237.61	44.25	87.00	77.00	*	*	*	145.96
357	237.61	44.25	87.00	77.00	*	*	*	145.96
358	237.61	44.25	87.00	77.00	*	*	*	145.96
359	237.61	44.25	87.00	77.00	*	*	*	145.96
360	237.61	44.25	87.00	77.00	*	*	*	145.96
361	237.61	44.25	87.00	77.00	*	*	*	145.96
362	237.61	44.25	87.00	77.00	*	*	*	145.96
363	237.61	44.25	87.00	77.00	*	*	*	145.96
364	237.61	44.25	87.00	77.00	*	*	*	145.96
365	237.61	44.25	87.00	77.00	*	*	*	145.96
366	237.61	44.25	87.00	77.00	*	*	*	145.96
367	237.61	44.25	87.00	77.00	*	*	*	145.96
368	237.61	44.25	87.00	77.00	*	*	*	145.96
369	237.61	44.25	87.00	77.00	*	*	*	145.96
370	237.61	44.25	87.00	77.00	*	*	*	145.96
371	237.61	44.25	87.00	77.00	*	*	*	145.96
372	237.61	44.25	87.00	77.00	*	*	*	145.96
373	237.61	44.25	87.00	77.00	*	*	*	145.96
374	237.61	44.25	87.00	77.00	*	*	*	145.96
375	237.61	44.25	87.00	77.00	*	*	*	145.96
376	237.61	44.25	87.00	77.00	*	*	*	145.96
377	237.61	44.25	87.00	77.00	*	*	*	145.96
378	237.61	44.25	87.00	77.00	*	*	*	145.96
379	237.61	44.25	87.00	77.00	*	*	*	145.96
380	237.61	44.25	87.00	77.00	*	*	*	145.96
381	237.61	44.25	87.00	77.00	*	*	*	145.96
382	237.61	44.25	87.00	77.00	70701	95.00	98.10	145.96
383	*	*	*	*	*	*	*	*
384	*	*	*	*	*	*	*	*
385	68.63	49.00	88.10	67.02	*	*	*	*
386	68.63	49.00	88.10	67.02	*	*	*	*
387	68.63	49.00	88.10	67.02	*	*	*	*
388	68.63	49.00	88.10	67.02	*	*	*	*
389	68.63	49.00	88.10	67.02	*	*	*	*
390	68.63	49.00	88.10	67.02	*	*	*	*
391	68.63	49.00	88.10	67.02	*	*	*	*
392	68.63	49.00	88.10	67.02	*	*	*	*
393	68.63	49.00	88.10	67.02	*	*	*	*
394	68.63	49.00	88.10	67.02	*	*	*	*
395	68.63	49.00	88.10	67.02	*	*	*	*

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range203	RO203	Inducts
396	68.63	49.00	88.10	67.02	*	*	*	*
397	68.63	49.00	88.10	67.02	*	*	*	*
398	68.63	49.00	88.10	67.02	*	*	*	*
399	68.63	49.00	88.10	67.02	*	*	*	*
400	68.63	49.00	88.10	67.02	*	*	*	*
401	68.63	49.00	88.10	67.02	*	*	*	*
402	68.63	49.00	88.10	67.02	*	*	*	*
403	68.63	49.00	88.10	67.02	57026	88.77	85.55	*
404	186.26	41.40	88.94	66.65	*	*	*	*
405	186.26	41.40	88.94	66.65	*	*	*	*
406	186.26	41.40	88.94	66.65	*	*	*	*
407	186.26	41.40	88.94	66.65	*	*	*	*
408	186.26	41.40	88.94	66.65	*	*	*	*
409	186.26	41.40	88.94	66.65	*	*	*	*
410	186.26	41.40	88.94	66.65	*	*	*	*
411	186.26	41.40	88.94	66.65	*	*	*	*
412	186.26	41.40	88.94	66.65	*	*	*	*
413	186.26	41.40	88.94	66.65	*	*	*	*
414	186.26	41.40	88.94	66.65	*	*	*	*
415	186.26	41.40	88.94	66.65	*	*	*	*
416	186.26	41.40	88.94	66.65	*	*	*	*
417	186.26	41.40	88.94	66.65	*	*	*	*
418	186.26	41.40	88.94	66.65	*	*	*	*
419	186.26	41.40	88.94	66.65	*	*	*	*
420	186.26	41.40	88.94	66.65	*	*	*	*
421	186.26	41.40	88.94	66.65	*	*	*	*
422	186.26	41.40	88.94	66.65	*	*	*	*
423	186.26	41.40	88.94	66.65	*	*	*	*
424	186.26	41.40	88.94	66.65	*	*	*	*
425	186.26	41.40	88.94	66.65	*	*	*	*
426	186.26	41.40	88.94	66.65	*	*	*	*
427	186.26	41.40	88.94	66.65	*	*	*	*
428	186.26	41.40	88.94	66.65	*	*	*	*
429	186.26	41.40	88.94	66.65	*	*	*	*
430	186.26	41.40	88.94	66.65	*	*	*	*
431	186.26	41.40	88.94	66.65	*	*	*	*
432	186.26	41.40	88.94	66.65	*	*	*	*
433	186.26	41.40	88.94	66.65	*	*	*	*
434	186.26	41.40	88.94	66.65	*	*	*	*
435	186.26	41.40	88.94	66.65	*	*	*	*
436	186.26	41.40	88.94	66.65	*	*	*	*
437	186.26	41.40	88.94	66.65	*	*	*	*
438	186.26	41.40	88.94	66.65	57202	87.69	*	*
439	369.61	29.11	86.25	72.50	*	*	*	87.78
440	369.61	29.11	86.25	72.50	*	*	*	87.78
441	369.61	29.11	86.25	72.50	*	*	*	87.78
442	369.61	29.11	86.25	72.50	*	*	*	87.78
443	369.61	29.11	86.25	72.50	*	*	*	87.78
444	369.61	29.11	86.25	72.50	*	*	*	87.78
445	369.61	29.11	86.25	72.50	*	*	*	87.78
446	369.61	29.11	86.25	72.50	*	*	*	87.78
447	369.61	29.11	86.25	72.50	*	*	*	87.78
448	369.61	29.11	86.25	72.50	*	*	*	87.78
449	369.61	29.11	86.25	72.50	*	*	*	87.78
450	369.61	29.11	86.25	72.50	*	*	*	87.78
451	369.61	29.11	86.25	72.50	*	*	*	87.78
452	369.61	29.11	86.25	72.50	*	*	*	87.78
453	369.61	29.11	86.25	72.50	*	*	*	87.78
454	369.61	29.11	86.25	72.50	*	*	*	87.78
455	369.61	29.11	86.25	72.50	*	*	*	87.78
456	369.61	29.11	86.25	72.50	*	*	*	87.78
457	369.61	29.11	86.25	72.50	*	*	*	87.78
458	369.61	29.11	86.25	72.50	*	*	*	87.78
459	369.61	29.11	86.25	72.50	*	*	*	87.78
460	369.61	29.11	86.25	72.50	*	*	*	87.78
461	369.61	29.11	86.25	72.50	*	*	*	87.78

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range204	RO204	Inducts
462	369.61	29.11	86.25	72.50	*	*	*	87.78
463	369.61	29.11	86.25	72.50	*	*	*	87.78
464	369.61	29.11	86.25	72.50	*	*	*	87.78
465	369.61	29.11	86.25	72.50	*	*	*	87.78
466	369.61	29.11	86.25	72.50	59173	86.20	81.22	87.78
467	276.69	65.18	88.64	75.43	*	*	*	160.50
468	276.69	65.18	88.64	75.43	*	*	*	160.50
469	276.69	65.18	88.64	75.43	*	*	*	160.50
470	276.69	65.18	88.64	75.43	*	*	*	160.50
471	276.69	65.18	88.64	75.43	*	*	*	160.50
472	276.69	65.18	88.64	75.43	*	*	*	160.50
473	276.69	65.18	88.64	75.43	*	*	*	160.50
474	276.69	65.18	88.64	75.43	*	*	*	160.50
475	276.69	65.18	88.64	75.43	*	*	*	160.50
476	276.69	65.18	88.64	75.43	*	*	*	160.50
477	276.69	65.18	88.64	75.43	*	*	*	160.50
478	276.69	65.18	88.64	75.43	*	*	*	160.50
479	276.69	65.18	88.64	75.43	*	*	*	160.50
480	276.69	65.18	88.64	75.43	*	*	*	160.50
481	276.69	65.18	88.64	75.43	*	*	*	160.50
482	276.69	65.18	88.64	75.43	*	*	*	160.50
483	276.69	65.18	88.64	75.43	*	*	*	160.50
484	276.69	65.18	88.64	75.43	*	*	*	160.50
485	276.69	65.18	88.64	75.43	*	*	*	160.50
486	276.69	65.18	88.64	75.43	*	*	*	160.50
487	276.69	65.18	88.64	75.43	*	*	*	160.50
488	276.69	65.18	88.64	75.43	*	*	*	160.50
489	276.69	65.18	88.64	75.43	*	*	*	160.50
490	276.69	65.18	88.64	75.43	*	*	*	160.50
491	276.69	65.18	88.64	75.43	*	*	*	160.50
492	276.69	65.18	88.64	75.43	*	*	*	160.50
493	276.69	65.18	88.64	75.43	*	*	*	160.50
494	276.69	65.18	88.64	75.43	59478	88.25	83.39	160.50
495	283.17	38.94	91.44	80.60	*	*	*	124.48
496	283.17	38.94	91.44	80.60	*	*	*	124.48
497	283.17	38.94	91.44	80.60	*	*	*	124.48
498	283.17	38.94	91.44	80.60	*	*	*	124.48
499	283.17	38.94	91.44	80.60	*	*	*	124.48
500	283.17	38.94	91.44	80.60	*	*	*	124.48
501	283.17	38.94	91.44	80.60	*	*	*	124.48
502	283.17	38.94	91.44	80.60	*	*	*	124.48
503	283.17	38.94	91.44	80.60	*	*	*	124.48
504	283.17	38.94	91.44	80.60	*	*	*	124.48
505	283.17	38.94	91.44	80.60	*	*	*	124.48
506	283.17	38.94	91.44	80.60	*	*	*	124.48
507	283.17	38.94	91.44	80.60	*	*	*	124.48
508	283.17	38.94	91.44	80.60	*	*	*	124.48
509	283.17	38.94	91.44	80.60	*	*	*	124.48
510	283.17	38.94	91.44	80.60	*	*	*	124.48
511	283.17	38.94	91.44	80.60	*	*	*	124.48
512	283.17	38.94	91.44	80.60	*	*	*	124.48
513	283.17	38.94	91.44	80.60	*	*	*	124.48
514	283.17	38.94	91.44	80.60	*	*	*	124.48
515	283.17	38.94	91.44	80.60	*	*	*	124.48
516	283.17	38.94	91.44	80.60	*	*	*	124.48
517	283.17	38.94	91.44	80.60	*	*	*	124.48
518	283.17	38.94	91.44	80.60	*	*	*	124.48
519	283.17	38.94	91.44	80.60	*	*	*	124.48
520	283.17	38.94	91.44	80.60	*	*	*	124.48
521	283.17	38.94	91.44	80.60	*	*	*	124.48
522	283.17	38.94	91.44	80.60	*	*	*	124.48
523	283.17	38.94	91.44	80.60	*	*	*	124.48
524	283.17	38.94	91.44	80.60	*	*	*	124.48
525	283.17	38.94	91.44	80.60	*	*	*	124.48
526	283.17	38.94	91.44	80.60	*	*	*	124.48
527	283.17	38.94	91.44	80.60	*	*	*	124.48

ROW	AVCALOmd	PoolOmd	AVCALNet	AVCALGrs	AVCALine	Range205	RO205	Inducts
528	283.17	38.94	91.44	80.60	*	*	*	124.48
529	283.17	38.94	91.44	80.60	59555	91.50	85.64	124.48
530	431.36	48.00	92.69	81.65	*	*	*	158.00
531	431.36	48.00	92.69	81.65	*	*	*	158.00
532	431.36	48.00	92.69	81.65	*	*	*	158.00
533	431.36	48.00	92.69	81.65	*	*	*	158.00
534	431.36	48.00	92.69	81.65	*	*	*	158.00
535	431.36	48.00	92.69	81.65	*	*	*	158.00
536	431.36	48.00	92.69	81.65	*	*	*	158.00
537	431.36	48.00	92.69	81.65	*	*	*	158.00
538	431.36	48.00	92.69	81.65	*	*	*	158.00
539	431.36	48.00	92.69	81.65	*	*	*	158.00
540	431.36	48.00	92.69	81.65	*	*	*	158.00
541	431.36	48.00	92.69	81.65	*	*	*	158.00
542	431.36	48.00	92.69	81.65	*	*	*	158.00
543	431.36	48.00	92.69	81.65	*	*	*	158.00
544	431.36	48.00	92.69	81.65	*	*	*	158.00
545	431.36	48.00	92.69	81.65	*	*	*	158.00
546	431.36	48.00	92.69	81.65	*	*	*	158.00
547	431.36	48.00	92.69	81.65	*	*	*	158.00
548	431.36	48.00	92.69	81.65	*	*	*	158.00
549	431.36	48.00	92.69	81.65	*	*	*	158.00
550	431.36	48.00	92.69	81.65	*	*	*	158.00
551	431.36	48.00	92.69	81.65	*	*	*	158.00
552	431.36	48.00	92.69	81.65	*	*	*	158.00
553	431.36	48.00	92.69	81.65	*	*	*	158.00
554	431.36	48.00	92.69	81.65	*	*	*	158.00
555	431.36	48.00	92.69	81.65	*	*	*	158.00
556	431.36	48.00	92.69	81.65	*	*	*	158.00
557	431.36	48.00	92.69	81.65	59488	91.07	85.69	158.00
558	285.89	31.57	86.68	74.17	*	*	*	114.53
559	285.89	31.57	86.68	74.17	*	*	*	114.53
560	285.89	31.57	86.68	74.17	*	*	*	114.53
561	285.89	31.57	86.68	74.17	*	*	*	114.53
562	285.89	31.57	86.68	74.17	*	*	*	114.53
563	285.89	31.57	86.68	74.17	*	*	*	114.53
564	285.89	31.57	86.68	74.17	*	*	*	114.53
565	285.89	31.57	86.68	74.17	*	*	*	114.53
566	285.89	31.57	86.68	74.17	*	*	*	114.53
567	285.89	31.57	86.68	74.17	*	*	*	114.53
568	285.89	31.57	86.68	74.17	*	*	*	114.53
569	285.89	31.57	86.68	74.17	*	*	*	114.53
570	285.89	31.57	86.68	74.17	*	*	*	114.53
571	285.89	31.57	86.68	74.17	*	*	*	114.53
572	285.89	31.57	86.68	74.17	*	*	*	114.53
573	285.89	31.57	86.68	74.17	*	*	*	114.53
574	235.89	31.57	86.68	74.17	*	*	*	114.53
575	265.89	31.57	86.68	74.17	*	*	*	114.53
576	285.89	31.57	86.68	74.17	*	*	*	114.53
577	285.89	31.57	86.68	74.17	*	*	*	114.53
578	285.89	31.57	86.68	74.17	*	*	*	114.53
579	285.89	31.57	86.68	74.17	*	*	*	114.53
580	285.89	31.57	86.68	74.17	*	*	*	114.53
581	285.89	31.57	86.68	74.17	*	*	*	114.53
582	285.89	31.57	86.68	74.17	*	*	*	114.53
583	285.89	31.57	86.68	74.17	*	*	*	114.53
584	285.89	31.57	86.68	74.17	*	*	*	114.53
585	235.89	31.57	86.68	74.17	59371	88.98	83.52	114.53
586	*	*	*	*	*	*	*	*
587	*	*	*	*	*	*	*	*
588	*	*	*	*	*	*	*	*
589	*	*	*	*	*	*	*	*
590	*	*	*	*	*	*	*	*
591	*	*	*	*	*	*	*	*
592	*	*	*	*	*	*	*	*
593	*	*	*	*	*	*	*	*

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range206	RO206	Inducts
594	*	*	*	*	*	*	*	*
595	*	*	*	*	*	*	*	*
596	*	*	*	*	*	*	*	*
597	*	*	*	*	*	*	*	*
598	65.64	19.50	95.62	90.75	*	*	*	53.81
599	65.64	19.50	95.62	90.75	*	*	*	53.81
600	65.64	19.50	95.62	90.75	*	*	*	53.81
601	65.64	19.50	95.62	90.75	*	*	*	53.81
602	65.64	19.50	95.62	90.75	*	*	*	53.81
603	65.64	19.50	95.62	90.75	*	*	*	53.81
604	65.64	19.50	95.62	90.75	*	*	*	53.81
605	65.64	19.50	95.62	90.75	*	*	*	53.81
606	65.64	19.50	95.62	90.75	71173	93.00	88.00	53.81
607	133.83	29.83	89.77	80.71	*	*	*	60.77
608	133.83	29.83	89.77	80.71	*	*	*	60.77
609	133.83	29.83	89.77	80.71	*	*	*	60.77
610	133.83	29.83	89.77	80.71	*	*	*	60.77
611	133.83	29.83	89.77	80.71	*	*	*	60.77
612	133.83	29.83	89.77	80.71	*	*	*	60.77
613	133.83	29.83	89.77	80.71	*	*	*	60.77
614	133.83	29.83	89.77	80.71	*	*	*	60.77
615	133.83	29.83	89.77	80.71	*	*	*	60.77
616	133.83	29.83	89.77	80.71	*	*	*	60.77
617	133.83	29.83	89.77	80.71	*	*	*	60.77
618	133.83	29.83	89.77	80.71	*	*	*	60.77
619	133.83	29.83	89.77	80.71	*	*	*	60.77
620	133.83	29.83	89.77	80.71	*	*	*	60.77
621	133.83	29.83	89.77	80.71	*	*	*	60.77
622	133.83	29.83	89.77	80.71	*	*	*	60.77
623	133.83	29.83	89.77	80.71	*	*	*	60.77
624	133.83	29.83	89.77	80.71	*	*	*	60.77
625	133.83	29.83	89.77	80.71	*	*	*	60.77
626	133.83	29.83	89.77	80.71	*	*	*	60.77
627	133.83	29.83	89.77	80.71	*	*	*	60.77
628	133.83	29.83	89.77	80.71	*	*	*	60.77
629	133.83	29.83	89.77	80.71	*	*	*	60.77
630	133.83	29.83	89.77	80.71	*	*	*	60.77
631	133.83	29.83	89.77	80.71	*	*	*	60.77
632	133.83	29.83	89.77	80.71	*	*	*	60.77
633	133.83	29.83	89.77	80.71	*	*	*	60.77
634	133.83	29.83	89.77	80.71	*	*	*	60.77
635	133.83	29.83	89.77	80.71	*	*	*	60.77
636	133.83	29.83	89.77	80.71	*	*	*	60.77
637	133.83	29.83	89.77	80.71	*	*	*	60.77
638	133.83	29.83	89.77	80.71	*	*	*	60.77
639	133.83	29.83	89.77	80.71	*	*	*	60.77
640	133.83	29.83	89.77	80.71	*	*	*	60.77
641	133.83	29.83	89.77	80.71	*	*	*	60.77
642	312.85	67.40	83.57	74.03	71252	89.20	85.60	60.77
643	312.85	67.40	83.57	74.03	*	*	*	136.86
644	312.85	67.40	83.57	74.03	*	*	*	136.86
645	312.85	67.40	83.57	74.03	*	*	*	136.86
646	312.85	67.40	83.57	74.03	*	*	*	136.86
647	312.85	67.40	83.57	74.03	*	*	*	136.86
648	312.85	67.40	83.57	74.03	*	*	*	136.86
649	312.85	67.40	83.57	74.03	*	*	*	136.86
650	312.85	67.40	83.57	74.03	*	*	*	136.86
651	312.85	67.40	83.57	74.03	*	*	*	136.86
652	312.85	67.40	83.57	74.03	*	*	*	136.86
653	312.85	67.40	83.57	74.03	*	*	*	136.86
654	312.85	67.40	83.57	74.03	*	*	*	136.86
655	312.85	67.40	83.57	74.03	*	*	*	136.86
656	312.85	67.40	83.57	74.03	*	*	*	136.86
657	312.85	67.40	83.57	74.03	*	*	*	136.96
658	312.85	67.40	83.57	74.03	*	*	*	136.86
659	312.85	67.40	83.57	74.03	*	*	*	136.86

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range207	R0207	Inducts
660	312.85	67.40	83.57	74.03	*	*	*	136.86
661	312.85	67.40	83.57	74.03	*	*	*	136.86
662	312.85	67.40	83.57	74.03	*	*	*	136.86
663	312.85	67.40	83.57	74.03	*	*	*	136.86
664	312.85	67.40	83.57	74.03	*	*	*	136.86
665	312.85	67.40	83.57	74.03	*	*	*	136.86
666	312.85	67.40	83.57	74.03	*	*	*	136.86
667	312.85	67.40	83.57	74.03	*	*	*	136.86
668	312.85	67.40	83.57	74.03	*	*	*	136.86
669	312.85	67.40	83.57	74.03	71221	91.10	87.20	136.86
670	249.86	33.75	86.70	82.40	*	*	*	133.28
671	249.86	33.75	86.70	82.40	*	*	*	133.28
672	249.86	33.75	86.70	82.40	*	*	*	133.28
673	249.86	33.75	86.70	82.40	*	*	*	133.28
674	249.86	33.75	86.70	82.40	*	*	*	133.28
675	249.86	33.75	86.70	82.40	*	*	*	133.28
676	249.86	33.75	86.70	82.40	*	*	*	133.28
677	249.86	33.75	86.70	82.40	*	*	*	133.28
678	249.86	33.75	86.70	82.40	*	*	*	133.28
679	249.86	33.75	86.70	82.40	*	*	*	133.28
680	249.86	33.75	86.70	82.40	*	*	*	133.28
681	249.86	33.75	86.70	82.40	*	*	*	133.28
682	249.86	33.75	86.70	82.40	*	*	*	133.28
683	249.86	33.75	86.70	82.40	*	*	*	133.28
684	249.86	33.75	86.70	82.40	*	*	*	133.28
685	249.86	33.75	86.70	82.40	*	*	*	133.28
686	249.86	33.75	86.70	82.40	*	*	*	133.28
687	249.86	33.75	86.70	82.40	*	*	*	133.28
688	249.86	33.75	86.70	82.40	*	*	*	133.28
689	249.86	33.75	86.70	82.40	*	*	*	133.28
690	249.86	33.75	86.70	82.40	*	*	*	133.28
691	249.86	33.75	86.70	82.40	*	*	*	133.28
692	249.86	33.75	86.70	82.40	*	*	*	133.28
693	249.86	33.75	86.70	82.40	*	*	*	133.28
694	249.86	33.75	86.70	82.40	*	*	*	133.28
695	249.86	33.75	86.70	82.40	*	*	*	133.28
696	249.86	33.75	86.70	82.40	*	*	*	133.28
697	249.86	33.75	86.70	82.40	70697	91.30	98.20	133.28
698	133.84	41.54	84.30	80.70	*	*	*	115.16
699	133.84	41.54	84.30	80.70	*	*	*	115.16
700	133.84	41.54	84.30	80.70	*	*	*	115.16
701	133.84	41.54	84.30	80.70	*	*	*	115.16
702	133.84	41.54	84.30	80.70	*	*	*	115.16
703	133.84	41.54	84.30	80.70	*	*	*	115.16
704	133.84	41.54	84.30	80.70	*	*	*	115.16
705	133.84	41.54	84.30	80.70	*	*	*	115.16
706	133.84	41.54	84.30	80.70	*	*	*	115.16
707	133.84	41.54	84.30	80.70	*	*	*	115.16
708	133.84	41.54	84.30	80.70	*	*	*	115.16
709	133.84	41.54	84.30	80.70	*	*	*	115.16
710	133.84	41.54	84.30	80.70	*	*	*	115.16
711	133.84	41.54	84.30	80.70	*	*	*	115.16
712	133.84	41.54	84.30	80.70	*	*	*	115.16
713	133.84	41.54	84.30	80.70	*	*	*	115.16
714	133.84	41.54	84.30	80.70	*	*	*	115.16
715	133.84	41.54	84.30	80.70	*	*	*	115.16
716	133.84	41.54	84.30	80.70	*	*	*	115.16
717	133.84	41.54	84.30	80.70	*	*	*	115.16
718	133.84	41.54	84.30	80.70	*	*	*	115.16
719	133.84	41.54	84.30	80.70	*	*	*	115.16
720	133.84	41.54	84.30	80.70	*	*	*	115.16
721	133.84	41.54	84.30	80.70	*	*	*	115.16
722	133.84	41.54	84.30	80.70	*	*	*	115.16
723	133.84	41.54	84.30	80.70	*	*	*	115.16
724	133.84	41.54	84.30	80.70	*	*	*	115.16
725	133.84	41.54	84.30	80.70	*	*	*	115.16

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range208	RO208	Inducts
726	133.84	41.54	84.30	80.70	*	*	*	115.16
727	133.84	41.54	84.30	80.70	*	*	*	115.16
728	133.84	41.54	84.30	80.70	*	*	*	115.16
729	133.84	41.54	84.30	80.70	*	*	*	115.16
730	133.84	41.54	84.30	80.70	*	*	*	115.16
731	133.84	41.54	84.30	80.70	*	*	*	115.16
732	133.84	41.54	84.30	80.70	*	*	*	115.16
733	133.84	41.54	84.30	80.70	*	*	*	115.16
734	133.84	41.54	84.30	80.70	70735	91.60	97.20	115.16
735	278.57	25.39	89.96	85.11	*	*	*	121.89
736	278.57	25.39	89.96	85.11	*	*	*	121.89
737	278.57	25.39	89.96	85.11	*	*	*	121.89
738	278.57	25.39	89.96	85.11	*	*	*	121.89
739	278.57	25.39	89.96	85.11	*	*	*	121.89
740	278.57	25.39	89.96	85.11	*	*	*	121.89
741	278.57	25.39	89.96	85.11	*	*	*	121.89
742	278.57	25.39	89.96	85.11	*	*	*	121.89
743	278.57	25.39	89.96	85.11	*	*	*	121.89
744	278.57	25.39	89.96	85.11	*	*	*	121.89
745	278.57	25.39	89.96	85.11	*	*	*	121.89
746	278.57	25.39	89.96	85.11	*	*	*	121.89
747	278.57	25.39	89.96	85.11	*	*	*	121.89
748	278.57	25.39	89.96	85.11	*	*	*	121.89
749	278.57	25.39	89.96	85.11	*	*	*	121.89
750	278.57	25.39	89.96	85.11	*	*	*	121.89
751	278.57	25.39	89.96	85.11	*	*	*	121.89
752	278.57	25.39	89.96	85.11	*	*	*	121.89
753	278.57	25.39	89.96	85.11	*	*	*	121.89
754	278.57	25.39	89.96	85.11	*	*	*	121.89
755	278.57	25.39	89.96	85.11	*	*	*	121.89
756	278.57	25.39	89.96	85.11	*	*	*	121.89
757	278.57	25.39	89.96	85.11	*	*	*	121.89
758	278.57	25.39	89.96	85.11	*	*	*	121.89
759	278.57	25.39	89.96	85.11	*	*	*	121.89
760	278.57	25.39	89.96	85.11	*	*	*	121.89
761	278.57	25.39	89.96	85.11	*	*	*	121.89
762	278.57	25.39	89.96	85.11	71377	*	93.00	121.89
763	326.14	36.78	90.80	81.40	*	89.50	*	*
764	326.14	36.78	90.80	81.40	*	*	*	*
765	326.14	36.78	90.80	81.40	*	*	*	*
766	326.14	36.78	90.80	81.40	*	*	*	*
767	326.14	36.78	90.80	81.40	*	*	*	*
768	326.14	36.78	90.80	81.40	*	*	*	*
769	326.14	36.78	90.80	81.40	*	*	*	*
770	326.14	36.78	90.80	81.40	*	*	*	*
771	326.14	36.78	90.80	81.40	*	*	*	*
772	326.14	36.78	90.80	81.40	*	*	*	*
773	34.71	30.71	74.40	43.00	*	*	*	93.14
774	34.71	30.71	74.40	43.00	*	*	*	93.14
775	34.71	30.71	74.40	43.00	*	*	*	93.14
776	34.71	30.71	74.40	43.00	*	*	*	93.14
777	34.71	30.71	74.40	43.00	*	*	*	93.14
778	34.71	30.71	74.40	43.00	*	*	*	93.14
779	34.71	30.71	74.40	43.00	*	*	*	93.14
780	34.71	30.71	74.40	43.00	*	*	*	93.14
781	34.71	30.71	74.40	43.00	*	*	*	93.14
782	34.71	30.71	74.40	43.00	66134	91.00	88.00	93.14
783	195.97	40.48	90.52	73.30	*	*	*	132.89
784	195.97	40.48	90.52	73.30	*	*	*	132.89
785	195.97	40.48	90.52	73.30	*	*	*	132.89
786	195.97	40.48	90.52	73.30	*	*	*	132.89
787	195.97	40.48	90.52	73.30	*	*	*	132.89
788	195.97	40.48	90.52	73.30	*	*	*	132.89
789	195.97	40.48	90.52	73.30	*	*	*	132.89
790	195.97	40.48	90.52	73.30	*	*	*	132.89
791	195.97	40.48	90.52	73.30	*	*	*	132.89

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range209	R0209	Inducts
792	195.97	40.48	90.52	73.30	*	*	*	132.89
793	195.97	40.48	90.52	73.30	*	*	*	132.89
794	195.97	40.48	90.52	73.30	*	*	*	132.89
795	195.97	40.48	90.52	73.30	*	*	*	132.89
796	195.97	40.48	90.52	73.30	64100	91.54	97.75	132.89
797	195.97	40.48	90.52	73.30	*	*	*	132.89
798	195.97	40.48	90.52	73.30	*	*	*	132.89
799	195.97	40.48	90.52	73.30	*	*	*	132.89
800	195.97	40.48	90.52	73.30	*	*	*	132.89
801	195.97	40.48	90.52	73.30	*	*	*	132.89
802	195.97	40.48	90.52	73.30	*	*	*	132.89
803	195.97	40.48	90.52	73.30	*	*	*	132.89
804	195.97	40.48	90.52	73.30	*	*	*	132.89
805	195.97	40.48	90.52	73.30	*	*	*	132.89
806	195.97	40.48	90.52	73.30	*	*	*	132.89
807	195.97	40.48	90.52	73.30	*	*	*	132.89
808	195.97	40.48	90.52	73.30	*	*	*	132.89
809	195.97	40.48	90.52	73.30	*	*	*	132.89
810	195.97	40.48	90.52	73.30	64105	92.10	96.84	132.89
811	195.97	40.48	90.52	73.30	*	*	*	132.89
812	195.97	40.48	90.52	73.30	*	*	*	132.89
813	195.97	40.48	90.52	73.30	*	*	*	132.89
814	195.97	40.48	90.52	73.30	*	*	*	132.89
815	195.97	40.48	90.52	73.30	*	*	*	132.89
816	195.97	40.48	90.52	73.30	*	*	*	132.89
817	195.97	40.48	90.52	73.30	64105	92.10	89.25	132.89
818	344.46	46.48	87.40	71.40	*	*	*	*
819	344.46	46.48	87.40	71.40	*	*	*	*
820	344.46	46.48	87.40	71.40	*	*	*	*
821	344.46	46.48	87.40	71.40	*	*	*	*
822	344.46	46.48	87.40	71.40	*	*	*	*
823	344.46	46.48	87.40	71.40	*	*	*	*
824	344.46	46.48	87.40	71.40	64011	91.78	96.78	*
825	344.46	46.48	87.40	71.40	*	*	*	*
826	344.46	46.48	87.40	71.40	*	*	*	*
827	344.46	46.48	87.40	71.40	*	*	*	*
828	344.46	46.48	87.40	71.40	*	*	*	*
829	344.46	46.48	87.40	71.40	*	*	*	*
830	344.46	46.48	87.40	71.40	*	*	*	*
831	344.46	46.48	87.40	71.40	*	*	*	*
832	344.46	46.48	87.40	71.40	*	*	*	*
833	344.46	46.48	87.40	71.40	*	*	*	*
834	344.46	46.48	87.40	71.40	*	*	*	*
835	344.46	46.48	87.40	71.40	*	*	*	*
836	344.46	46.48	87.40	71.40	*	*	*	*
837	344.46	46.48	87.40	71.40	*	*	*	*
838	344.46	46.48	87.40	71.40	*	*	*	*
839	344.46	46.48	87.40	71.40	*	*	*	*
840	344.46	46.48	87.40	71.40	*	*	*	*
841	344.46	46.48	87.40	71.40	*	*	*	*
842	344.46	46.48	87.40	71.40	*	*	*	*
843	344.46	46.48	87.40	71.40	*	*	*	*
844	344.46	46.48	87.40	71.40	*	*	*	*
845	344.46	46.48	87.40	71.40	64013	91.30	88.00	*
846	332.54	61.93	90.47	83.14	*	*	*	*
847	332.54	61.93	90.47	83.14	*	*	*	*
848	332.54	61.93	90.47	83.14	*	*	*	*
849	332.54	61.93	90.47	83.14	*	*	*	*
850	332.54	61.93	90.47	83.14	*	*	*	*
851	332.54	61.93	90.47	83.14	*	*	*	*
852	332.54	61.93	90.47	83.14	*	*	*	*
853	332.54	61.93	90.47	83.14	*	*	*	*
854	332.54	61.93	90.47	83.14	*	*	*	*
855	332.54	61.93	90.47	83.14	*	*	*	*
856	332.54	61.93	90.47	83.14	*	*	*	*
857	332.54	61.93	90.47	83.14	*	*	*	*

ROW	AVCALOmd	PoolOmd	AVCALNet	AVCALGrs	AVCALine	Range210	RO210	Inducts
858	332.54	61.93	90.47	83.14	*	*	*	*
859	332.54	61.93	90.47	83.14	64013	91.30	96.58	*
860	332.54	61.93	90.47	83.14	*	*	*	*
861	332.54	61.93	90.47	83.14	*	*	*	*
862	332.54	61.93	90.47	83.14	*	*	*	*
863	332.54	61.93	90.47	83.14	*	*	*	*
864	332.54	61.93	90.47	83.14	*	*	*	*
865	332.54	61.93	90.47	83.14	*	*	*	*
866	332.54	61.93	90.47	83.14	*	*	*	*
867	332.54	61.93	90.47	83.14	*	*	*	*
868	332.54	61.93	90.47	83.14	*	*	*	*
869	332.54	61.93	90.47	83.14	*	*	*	*
870	332.54	61.93	90.47	83.14	*	*	*	*
871	332.54	61.93	90.47	83.14	*	*	*	*
872	332.54	61.93	90.47	83.14	*	*	*	*
873	332.54	61.93	90.47	83.14	64047	89.17	96.57	*
874	275.57	30.03	94.45	91.01	*	*	*	*
875	275.57	30.03	94.45	91.01	*	*	*	*
876	275.57	30.03	94.45	91.01	*	*	*	*
877	275.57	30.03	94.45	91.01	*	*	*	*
878	275.57	30.03	94.45	91.01	*	*	*	*
879	275.57	30.03	94.45	91.01	*	*	*	*
880	275.57	30.03	94.45	91.01	*	*	*	*
881	275.57	30.03	94.45	91.01	*	*	*	*
882	275.57	30.03	94.45	91.01	*	*	*	*
883	275.57	30.03	94.45	91.01	*	*	*	*
884	275.57	30.03	94.45	91.01	*	*	*	*
885	275.57	30.03	94.45	91.01	*	*	*	*
886	275.57	30.03	94.45	91.01	*	*	*	*
887	275.57	30.03	94.45	91.01	*	*	*	*
888	275.57	30.03	94.45	91.01	*	*	*	*
889	275.57	30.03	94.45	91.01	*	*	*	*
890	275.57	30.03	94.45	91.01	*	*	*	*
891	275.57	30.03	94.45	91.01	*	*	*	*
892	275.57	30.03	94.45	91.01	*	*	*	*
893	275.57	30.03	94.45	91.01	*	*	*	*
894	275.57	30.03	94.45	91.01	*	*	*	*
895	275.57	30.03	94.45	91.01	*	*	*	*
896	275.57	30.03	94.45	91.01	*	*	*	*
897	275.57	30.03	94.45	91.01	*	*	*	*
898	275.57	30.03	94.45	91.01	*	*	*	*
899	275.57	30.03	94.45	91.01	*	*	*	*
900	275.57	30.03	94.45	91.01	*	*	*	*
901	275.57	30.03	94.45	91.01	*	*	*	*
902	275.57	30.03	94.45	91.01	*	*	*	*
903	275.57	30.03	94.45	91.01	*	*	*	*
904	275.57	30.03	94.45	91.01	*	*	*	*
905	275.57	30.03	94.45	91.01	*	*	*	*
906	275.57	30.03	94.45	91.01	*	*	*	*
907	275.57	30.03	94.45	91.01	*	*	*	*
908	275.57	30.03	94.45	91.01	64082	92.25	94.07	*
909	*	*	*	*	*	*	*	*
910	*	*	*	*	*	*	*	*
911	*	*	*	*	*	*	*	*
912	*	*	*	*	*	*	*	*
913	*	*	*	*	*	*	*	*
914	*	*	*	*	*	*	*	*
915	*	*	*	*	*	*	*	*
916	*	*	*	*	*	*	*	*
917	*	*	*	*	*	*	*	*
918	*	*	*	*	*	*	*	*
919	*	*	*	*	*	*	*	*
920	148.96	12.48	89.76	75.44	*	*	*	89.05
921	148.96	12.48	89.76	75.44	*	*	*	89.05
922	148.96	12.48	89.76	75.44	*	*	*	89.05
923	148.96	12.48	89.76	75.44	*	*	*	89.05

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range211	R0211	Inducts
924	148.96	12.48	89.76	75.44	*	*	*	89.05
925	148.96	12.48	89.76	75.44	*	*	*	89.05
926	148.96	12.48	89.76	75.44	*	*	*	89.05
927	148.96	12.48	89.76	75.44	*	*	*	89.05
928	148.96	12.48	89.76	75.44	*	*	*	89.05
929	148.96	12.48	89.76	75.44	*	*	*	89.05
930	148.96	12.48	89.76	75.44	*	*	*	89.05
931	148.96	12.48	89.76	75.44	*	*	*	89.05
932	148.96	12.48	89.76	75.44	*	*	*	89.05
933	148.96	12.48	89.76	75.44	*	*	*	89.05
934	148.96	12.48	89.76	75.44	*	*	*	89.05
935	148.96	12.48	89.76	75.44	*	*	*	89.05
936	148.96	12.48	89.76	75.44	*	*	*	89.05
937	148.96	12.48	89.76	75.44	*	*	*	89.05
938	148.96	12.48	89.76	75.44	*	*	*	89.05
939	148.96	12.48	89.76	75.44	*	*	*	89.05
940	148.96	12.48	89.76	75.44	58033	89.31	84.03	89.05
941	*	*	*	*	*	*	*	*
942	*	*	*	*	*	*	*	*
943	*	*	*	*	*	*	*	*
944	*	*	*	*	*	*	*	*
945	*	*	*	*	*	*	*	*
946	*	*	*	*	*	*	*	*
947	*	*	*	*	*	*	*	*
948	*	*	*	*	*	*	*	*
949	*	*	*	*	*	*	*	*
950	*	*	*	*	*	*	*	*
951	*	*	*	*	*	*	*	*
952	*	*	*	*	*	*	*	*
953	*	*	*	*	*	*	*	*
954	*	*	*	*	58033	89.31	84.03	*
955	*	*	*	*	*	*	*	*
956	*	*	*	*	*	*	*	*
957	*	*	*	*	*	*	*	*
958	*	*	*	*	*	*	*	*
959	*	*	*	*	*	*	*	*
960	*	*	*	*	*	*	*	*
961	*	*	*	*	*	*	*	*
962	*	*	*	*	*	*	*	*
963	*	*	*	*	*	*	*	*
964	*	*	*	*	*	*	*	*
965	*	*	*	*	*	*	*	*
966	*	*	*	*	*	*	*	*
967	*	*	*	*	*	*	*	*
968	*	*	*	*	*	*	*	*
969	268.50	*	89.50	79.03	*	*	*	143.00
970	268.50	*	89.50	79.03	*	*	*	143.00
971	268.50	*	89.50	79.03	*	*	*	143.00
972	268.50	*	89.50	79.03	*	*	*	143.00
973	268.50	*	89.50	79.03	*	*	*	143.00
974	268.50	*	89.50	79.03	*	*	*	143.00
975	268.50	*	89.50	79.03	*	*	*	143.00
976	268.50	*	89.50	79.03	*	*	*	143.00
977	268.50	*	89.50	79.03	*	*	*	143.00
978	268.50	*	89.50	79.03	*	*	*	143.00
979	268.50	*	89.50	79.03	*	*	*	143.00
980	268.50	*	89.50	79.03	*	*	*	143.00
981	268.50	*	89.50	79.03	*	*	*	143.00
982	268.50	*	89.50	79.03	58080	89.10	83.60	143.00
983	268.50	*	89.50	79.03	*	*	*	143.00
984	268.50	*	89.50	79.03	*	*	*	143.00
985	268.50	*	89.50	79.03	*	*	*	143.00
986	268.50	*	89.50	79.03	*	*	*	143.00
987	268.50	*	89.50	79.03	*	*	*	143.00
988	268.50	*	89.50	79.03	*	*	*	143.00
989	268.50	*	89.50	79.03	*	*	*	143.00

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range212	RO212	Inducts
990	268.50	*	89.50	79.03	*	*	*	143.00
991	268.50	*	89.50	79.03	*	*	*	143.00
992	268.50	*	89.50	79.03	*	*	*	143.00
993	268.50	*	89.50	79.03	*	*	*	143.00
994	268.50	*	89.50	79.03	*	*	*	143.00
995	268.50	*	89.50	79.03	*	*	*	143.00
996	268.50	*	89.50	79.03	58035	91.35	83.60	143.00
997	196.39	*	87.95	47.15	*	*	*	163.79
998	196.39	*	87.95	47.15	*	*	*	163.79
999	196.39	*	87.95	47.15	*	*	*	163.79
1000	196.39	*	87.95	47.15	*	*	*	163.79
1001	196.39	*	87.95	47.15	*	*	*	163.79
1002	196.39	*	87.95	47.15	*	*	*	163.79
1003	196.39	*	87.95	47.15	*	*	*	163.79
1004	196.39	*	87.95	47.15	*	*	*	163.79
1005	196.39	*	87.95	47.15	*	*	*	163.79
1006	196.39	*	87.95	47.15	*	*	*	163.79
1007	196.39	*	87.95	47.15	*	*	*	163.79
1008	196.39	*	87.95	47.15	*	*	*	163.79
1009	196.39	*	87.95	47.15	*	*	*	163.79
1010	196.39	*	87.95	47.15	58035	91.35	98.38	163.79
1011	196.39	*	87.95	47.15	*	*	*	163.79
1012	196.39	*	87.95	47.15	*	*	*	163.79
1013	196.39	*	87.95	47.15	*	*	*	163.79
1014	196.39	*	87.95	47.15	*	*	*	163.79
1015	196.39	*	87.95	47.15	*	*	*	163.79
1016	196.39	*	87.95	47.15	*	*	*	163.79
1017	196.39	*	87.95	47.15	*	*	*	163.79
1018	196.39	*	87.95	47.15	*	*	*	163.79
1019	196.39	*	87.95	47.15	*	*	*	163.79
1020	196.39	*	87.95	47.15	*	*	*	163.79
1021	196.39	*	87.95	47.15	*	*	*	163.79
1022	196.39	*	87.95	47.15	*	*	*	163.79
1023	196.39	*	87.95	47.15	*	*	*	163.79
1024	196.39	*	87.95	47.15	58057	91.82	98.46	163.79
1025	259.14	*	90.75	83.66	*	*	*	*
1026	259.14	*	90.75	83.66	*	*	*	*
1027	259.14	*	90.75	83.66	*	*	*	*
1028	259.14	*	90.75	83.66	*	*	*	*
1029	259.14	*	90.75	83.66	*	*	*	*
1030	259.14	*	90.75	83.66	*	*	*	*
1031	259.14	*	90.75	83.66	*	*	*	*
1032	259.14	*	90.75	83.66	*	*	*	*
1033	259.14	*	90.75	83.66	*	*	*	*
1034	259.14	*	90.75	83.66	*	*	*	*
1035	259.14	*	90.75	83.66	*	*	*	*
1036	259.14	*	90.75	83.66	*	*	*	*
1037	259.14	*	90.75	83.66	*	*	*	*
1038	259.14	*	90.75	83.66	58057	91.82	98.46	*
1039	259.14	*	90.75	83.66	*	*	*	*
1040	259.14	*	90.75	83.66	*	*	*	*
1041	259.14	*	90.75	83.66	*	*	*	*
1042	259.14	*	90.75	83.66	*	*	*	*
1043	259.14	*	90.75	83.66	*	*	*	*
1044	259.14	*	90.75	83.66	*	*	*	*
1045	259.14	*	90.75	83.66	*	*	*	*
1046	259.14	*	90.75	83.66	*	*	*	*
1047	259.14	*	90.75	83.66	*	*	*	*
1048	259.14	*	90.75	83.66	*	*	*	*
1049	259.14	*	90.75	83.66	*	*	*	*
1050	259.14	*	90.75	83.66	*	*	*	*
1051	259.14	*	90.75	83.66	*	*	*	*
1052	259.14	*	90.75	83.66	*	*	*	*
1053	259.14	*	90.75	83.66	*	*	*	*
1054	259.14	*	90.75	83.66	*	*	*	*
1055	259.14	*	90.75	83.66	*	*	*	*

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range213	RO213	Inducts
1056	259.14	*	90.75	83.66	*	*	*	*
1057	259.14	*	90.75	83.66	*	*	*	*
1058	259.14	*	90.75	83.66	*	*	*	*
1059	259.14	*	90.75	83.66	58063	93.14	97.85	*
1060	317.64	*	93.15	85.45	*	*	*	*
1061	317.64	*	93.15	85.45	*	*	*	*
1062	317.64	*	93.15	85.45	*	*	*	*
1063	317.64	*	93.15	85.45	*	*	*	*
1064	317.64	*	93.15	85.45	*	*	*	*
1065	317.64	*	93.15	85.45	*	*	*	*
1066	317.64	*	93.15	85.45	*	*	*	*
1067	317.64	*	93.15	85.45	*	*	*	*
1068	317.64	*	93.15	85.45	*	*	*	*
1069	317.64	*	93.15	85.45	*	*	*	*
1070	317.64	*	93.15	85.45	*	*	*	*
1071	317.64	*	93.15	85.45	*	*	*	*
1072	317.64	*	93.15	85.45	*	*	*	*
1073	317.64	*	93.15	85.45	*	*	*	*
1074	317.64	*	93.15	85.45	*	*	*	*
1075	317.64	*	93.15	85.45	*	*	*	*
1076	317.64	*	93.15	85.45	*	*	*	*
1077	317.64	*	93.15	85.45	*	*	*	*
1078	317.64	*	93.15	85.45	*	*	*	*
1079	317.64	*	93.15	85.45	*	*	*	*
1080	317.64	*	93.15	85.45	58065	94.00	96.87	*
1081	317.64	*	93.15	85.45	*	*	*	*
1082	317.64	*	93.15	85.45	*	*	*	*
1083	317.64	*	93.15	85.45	*	*	*	*
1084	317.64	*	93.15	85.45	*	*	*	*
1085	317.64	*	93.15	85.45	*	*	*	*
1086	317.64	*	93.15	85.45	*	*	*	*
1087	317.64	*	93.15	85.45	58065	94.00	96.87	*
1088	*	*	*	*	*	*	*	*
1089	*	*	*	*	*	*	*	*
1090	*	*	*	*	*	*	*	*
1091	*	*	*	*	*	*	*	*
1092	*	*	*	*	*	*	*	*
1093	*	*	*	*	*	*	*	*
1094	*	*	*	*	*	*	*	*
1095	*	*	*	*	*	*	*	*
1096	*	*	*	*	*	*	*	*
1097	*	*	*	*	*	*	*	*
1098	*	*	*	*	*	*	*	*
1099	*	*	*	*	*	*	*	*
1100	*	*	*	*	*	*	*	*
1101	*	*	*	*	58065	94.00	96.87	*
1102	*	*	*	*	*	*	*	*
1103	*	*	*	*	*	*	*	*
1104	*	*	*	*	*	*	*	*
1105	*	*	*	*	*	*	*	*
1106	*	*	*	*	*	*	*	*
1107	*	*	*	*	*	*	*	*
1108	*	*	*	*	*	*	*	*
1109	*	*	*	*	*	*	*	*
1110	*	*	*	*	*	*	*	*
1111	*	*	*	*	*	*	*	*
1112	*	*	*	*	*	*	*	*
1113	*	*	*	*	*	*	*	*
1114	*	*	*	*	*	*	*	*
1115	*	*	*	*	*	*	*	*
1116	*	*	*	*	*	*	*	*
1117	*	*	*	*	*	*	*	*
1118	*	*	*	*	*	*	*	*
1119	*	*	*	*	*	*	*	*
1120	*	*	*	*	*	*	*	*
1121	*	*	*	*	*	*	*	*

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range214	RO214	Inducts
1122	*	*	*	*	*	*	*	*
1123	*	*	*	*	*	*	*	*
1124	*	*	*	*	*	*	*	*
1125	*	*	*	*	58208	87.03	82.60	*
1126	*	*	*	*	*	*	*	*
1127	*	*	*	*	*	*	*	*
1128	*	*	*	*	*	*	*	*
1129	*	*	*	*	*	*	*	*
1130	*	*	*	*	*	*	*	*
1131	*	*	*	*	*	*	*	*
1132	*	*	*	*	*	*	*	*
1133	*	*	*	*	*	*	*	*
1134	*	*	*	*	*	*	*	*
1135	*	*	*	*	*	*	*	*
1136	*	*	*	*	*	*	*	*
1137	*	*	*	*	*	*	*	*
1138	*	*	*	*	*	*	*	*
1139	*	*	*	*	*	*	*	*
1140	*	*	*	*	*	*	*	*
1141	*	*	*	*	*	*	*	*
1142	*	*	*	*	*	*	*	*
1143	*	*	*	*	*	*	*	*
1144	*	*	*	*	*	*	*	*
1145	*	*	*	*	*	*	*	*
1146	*	*	*	*	*	*	*	*
1147	271.94	*	87.52	84.73	*	*	*	91.25
1148	271.94	*	87.52	84.73	*	*	*	91.25
1149	271.94	*	87.52	84.73	*	*	*	91.25
1150	271.94	*	87.52	84.73	*	*	*	91.25
1151	271.94	*	87.52	84.73	*	*	*	91.25
1152	271.94	*	87.52	84.73	*	*	*	91.25
1153	271.94	*	87.52	84.73	*	*	*	91.25
1154	271.94	*	87.52	84.73	*	*	*	91.25
1155	271.94	*	87.52	84.73	*	*	*	91.25
1156	271.94	*	87.52	84.73	*	*	*	91.25
1157	271.94	*	87.52	84.73	*	*	*	91.25
1158	271.94	*	87.52	84.73	*	*	*	91.25
1159	271.94	*	87.52	84.73	*	*	*	91.25
1160	271.94	*	87.52	84.73	*	*	*	91.25
1161	271.94	*	87.52	84.73	*	*	*	91.25
1162	271.94	*	87.52	84.73	*	*	*	91.25
1163	271.94	*	87.52	84.73	*	*	*	91.25
1164	271.94	*	87.52	84.73	*	*	*	91.25
1165	271.94	*	87.52	84.73	*	*	*	91.25
1166	271.94	*	87.52	84.73	*	*	*	91.25
1167	271.94	*	87.52	84.73	*	*	*	91.25
1168	271.94	*	87.52	84.73	*	*	*	91.25
1169	271.94	*	87.52	84.73	*	*	*	91.25
1170	271.94	*	87.52	84.73	*	*	*	91.25
1171	271.94	*	87.52	84.73	*	*	*	91.25
1172	271.94	*	87.52	84.73	*	*	*	91.25
1173	271.94	*	87.52	84.73	*	*	*	91.25
1174	271.94	*	87.52	84.73	58135	89.20	84.60	91.25
1175	271.94	*	87.52	84.73	*	*	*	91.25
1176	271.94	*	87.52	84.73	*	*	*	91.25
1177	271.94	*	87.52	84.73	*	*	*	91.25
1178	271.94	*	87.52	84.73	*	*	*	91.25
1179	271.94	*	87.52	84.73	*	*	*	91.25
1180	271.94	*	87.52	84.73	*	*	*	91.25
1181	271.94	*	87.52	84.73	*	*	*	91.25
1182	170.22	*	86.00	75.00	*	*	*	145.60
1183	170.22	*	86.00	75.00	*	*	*	145.60
1184	170.22	*	86.00	75.00	*	*	*	145.60
1185	170.22	*	86.00	75.00	*	*	*	145.60
1186	170.22	*	86.00	75.00	*	*	*	145.60
1187	170.22	*	86.00	75.00	*	*	*	145.60

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range215	RO215	Inducts
1188	170.22	*	86.00	75.00	*	*	*	145.60
1189	170.22	*	86.00	75.00	*	*	*	145.60
1190	170.22	*	86.00	75.00	*	*	*	145.60
1191	170.22	*	86.00	75.00	*	*	*	145.60
1192	170.22	*	86.00	75.00	*	*	*	145.60
1193	170.22	*	86.00	75.00	*	*	*	145.60
1194	170.22	*	86.00	75.00	*	*	*	145.60
1195	170.22	*	86.00	75.00	*	*	*	145.60
1196	170.22	*	86.00	75.00	*	*	*	145.60
1197	170.22	*	86.00	75.00	*	*	*	145.60
1198	170.22	*	86.00	75.00	*	*	*	145.60
1199	170.22	*	86.00	75.00	*	*	*	145.60
1200	170.22	*	86.00	75.00	*	*	*	145.60
1201	170.22	*	86.00	75.00	*	*	*	145.60
1202	170.22	*	86.00	75.00	*	*	*	145.60
1203	170.22	*	86.00	75.00	*	*	*	145.60
1204	170.22	*	86.00	75.00	*	*	*	145.60
1205	170.22	*	86.00	75.00	*	*	*	145.60
1206	170.22	*	86.00	75.00	*	*	*	145.60
1207	170.22	*	86.00	75.00	*	*	*	145.60
1208	170.22	*	86.00	75.00	*	*	*	145.60
1209	170.22	*	86.00	75.00	58085	91.00	87.00	145.60
1210	170.22	*	86.00	75.00	*	*	*	145.60
1211	170.22	*	86.00	75.00	*	*	*	145.60
1212	170.22	*	86.00	75.00	*	*	*	145.60
1213	170.22	*	86.00	75.00	*	*	*	145.60
1214	170.22	*	86.00	75.00	*	*	*	145.60
1215	170.22	*	86.00	75.00	*	*	*	145.60
1216	170.22	*	86.00	75.00	*	*	*	145.60
1217	*	*	*	*	*	*	*	*
1218	*	*	*	*	*	*	*	*
1219	*	*	*	*	*	*	*	*
1220	*	*	*	*	*	*	*	*
1221	*	*	*	*	*	*	*	*
1222	*	*	*	*	*	*	*	*
1223	*	*	*	*	*	*	*	*
1224	*	*	*	*	*	*	*	*
1225	*	*	*	*	*	*	*	*
1226	*	*	*	*	*	*	*	*
1227	*	*	*	*	*	*	*	*
1228	*	*	*	*	*	*	*	*
1229	*	*	*	*	*	*	*	*
1230	*	*	*	*	*	*	*	*
1231	*	*	*	*	*	*	*	*
1232	*	*	*	*	*	*	*	*
1233	*	*	*	*	*	*	*	*
1234	*	*	*	*	*	*	*	*
1235	*	*	*	*	*	*	*	*
1236	*	*	*	*	*	*	*	*
1237	*	*	*	*	*	*	*	*
1238	*	*	*	*	*	*	*	*
1239	*	*	*	*	*	*	*	*
1240	*	*	*	*	*	*	*	*
1241	*	*	*	*	*	*	*	*
1242	*	*	*	*	*	*	*	*
1243	*	*	*	*	*	*	*	*
1244	*	*	*	*	*	*	*	*
1245	*	*	*	*	*	*	*	*
1246	*	*	*	*	*	*	*	*
1247	*	*	*	*	*	*	*	*
1248	*	*	*	*	*	*	*	*
1249	*	*	*	*	*	*	*	*
1250	*	*	*	*	*	*	*	*
1251	*	*	*	*	*	*	*	*
1252	*	*	*	*	*	*	*	*
1253	*	*	*	*	*	*	*	*

ROW	AVCALDmd	PoolDmd	AVCALNet	AVCALGrs	AVCALine	Range216	RO216	Inducts
1254	*	*	*	*	*	*	*	*
1255	*	*	*	*	*	*	*	*
1256	*	*	*	*	*	*	*	*
1257	*	*	*	*	*	*	*	*
1258	*	*	*	*	*	*	*	*
1259	*	*	*	*	*	*	*	*
1260	*	*	*	*	*	*	*	*

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
1	73.0	11.0	3.00	*	*	*	142	71	*
2	73.0	11.0	3.00	86	83	169	*	*	81
3	73.0	11.0	3.00	*	*	*	0	0	*
4	73.0	11.0	3.00	90	85	175	45	24	81
5	73.0	11.0	3.00	91	86	177	71	28	81
6	73.0	11.0	3.00	91	89	180	174	73	81
7	73.0	11.0	3.00	88	84	172	164	63	81
8	73.0	11.0	3.00	86	87	173	271	110	80
9	73.0	11.0	3.00	86	80	166	115	43	80
10	73.0	11.0	3.00	88	83	171	245	110	80
11	73.0	11.0	3.00	83	78	161	251	95	80
12	73.0	11.0	3.00	85	74	159	176	74	80
13	73.0	11.0	3.00	81	75	156	185	73	80
14	73.0	11.0	3.00	83	78	161	114	40	80
15	73.0	11.0	3.00	85	76	161	147	65	80
16	73.0	11.0	3.00	83	79	162	241	107	80
17	73.0	11.0	3.00	86	74	160	*	*	80
18	73.0	11.0	3.00	*	*	*	*	*	*
19	73.0	11.0	3.00	*	*	*	*	*	*
20	73.0	11.0	3.00	*	*	*	0	0	*
21	73.0	11.0	3.00	85	75	160	25	13	80
22	73.0	11.0	3.00	84	78	162	107	51	81
23	76.0	9.0	2.00	84	78	162	184	74	80
24	76.0	9.0	2.00	84	78	162	*	*	80
25	76.0	9.0	2.00	*	*	*	189	81	*
26	76.0	9.0	2.00	89	84	173	0	0	79
27	76.0	9.0	2.00	87	80	167	155	70	79
28	76.0	9.0	2.00	85	80	165	161	73	79
29	76.0	9.0	2.00	84	77	161	73	27	79
30	76.0	9.0	2.00	84	76	160	5	3	79
31	76.0	9.0	2.00	84	80	164	146	61	79
32	76.0	9.0	2.00	87	81	168	187	80	79
33	76.0	9.0	2.00	89	78	167	*	*	79
34	76.0	9.0	2.00	*	*	*	41	15	*
35	76.0	9.0	2.00	87	84	171	117	58	79
36	76.0	9.0	2.00	86	80	166	1	1	79
37	76.0	9.0	2.00	91	82	173	235	105	79
38	76.0	9.0	2.00	89	81	170	*	*	80
39	76.0	9.0	2.00	*	*	*	*	*	*
40	76.0	9.0	2.00	*	*	*	*	*	*
41	76.0	9.0	2.00	*	*	*	72	64	*
42	76.0	9.0	2.00	87	84	171	*	*	79
43	76.0	9.0	2.00	*	*	*	*	*	*
44	76.0	9.0	2.00	*	*	*	*	*	*
45	76.0	9.0	2.00	*	*	*	*	*	*
46	76.0	9.0	2.00	*	*	*	*	*	*
47	76.0	9.0	2.00	*	*	*	*	*	*
48	76.0	9.0	2.00	*	*	*	291	151	*
49	76.0	9.0	2.00	91	86	177	*	*	79
50	73.0	10.0	4.00	*	*	*	51	18	*
51	73.0	10.0	4.00	92	86	178	172	126	79
52	73.0	10.0	4.00	85	83	168	223	95	71
53	73.0	10.0	4.00	81	79	160	189	81	72
54	73.0	10.0	4.00	86	81	167	14	4	74
55	73.0	10.0	4.00	85	77	162	150	62	74
56	73.0	10.0	4.00	88	84	172	109	48	74
57	73.0	10.0	4.00	89	84	173	128	58	74
58	73.0	10.0	4.00	85	80	165	132	57	75
59	73.0	10.0	4.00	84	81	165	244	104	74
60	73.0	10.0	4.00	85	80	165	177	74	75
61	73.0	10.0	4.00	81	75	156	119	52	75
62	73.0	10.0	4.00	81	76	157	31	12	74
63	73.0	10.0	4.00	84	78	162	*	*	73
64	73.0	10.0	4.00	*	*	*	*	*	*
65	73.0	10.0	4.00	*	*	*	*	*	*

ROW	RFI	AMPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
66	73.0	10.0	4.00	*	*	*	0	0	*
67	73.0	10.0	4.00	86	82	168	191	63	73
68	73.0	10.0	4.00	73	70	143	237	84	73
69	73.0	10.0	4.00	79	77	156	244	98	73
70	73.0	10.0	4.00	82	81	163	285	113	73
71	73.0	10.0	4.00	82	77	159	139	102	73
72	73.0	10.0	4.00	77	74	151	240	105	73
73	73.0	10.0	4.00	84	71	155	269	115	73
74	73.0	10.0	4.00	80	73	153	223	88	73
75	73.0	10.0	4.00	78	73	151	2	2	73
76	73.0	10.0	4.00	85	79	164	3	3	73
77	73.0	10.0	4.00	82	79	161	209	104	72
78	73.0	10.0	4.00	86	79	165	*	*	72
79	73.0	10.0	4.00	*	*	*	*	*	*
80	73.0	10.0	4.00	*	*	*	*	*	*
81	73.0	10.0	4.00	*	*	*	*	*	*
82	73.0	10.0	4.00	*	*	*	*	*	*
83	73.0	10.0	4.00	*	*	*	*	*	*
84	73.0	10.0	4.00	*	*	*	*	*	*
85	77.0	10.0	5.00	*	*	*	3	2	*
86	77.0	10.0	5.00	85	83	168	178	85	71
87	77.0	10.0	5.00	84	73	157	289	124	75
88	77.0	10.0	5.00	79	75	154	44	16	75
89	77.0	10.0	5.00	83	80	163	34	15	75
90	77.0	10.0	5.00	85	84	169	3	1	75
91	77.0	10.0	5.00	87	87	174	0	0	75
92	77.0	10.0	5.00	83	79	162	26	19	75
93	77.0	10.0	5.00	87	85	172	71	35	75
94	77.0	10.0	5.00	80	79	159	5	2	75
95	77.0	10.0	5.00	85	82	167	*	*	74
96	77.0	10.0	5.00	*	*	*	241	10[illegible]	*
97	77.0	10.0	5.00	85	81	166	221	93	73
98	77.0	10.0	5.00	84	82	166	187	99	73
99	77.0	10.0	5.00	81	79	160	176	81	72
100	77.0	10.0	5.00	79	76	155	*	*	72
101	77.0	10.0	5.00	*	*	*	2	1	*
102	77.0	10.0	5.00	86	84	170	197	88	73
103	77.0	10.0	5.00	79	74	153	195	87	73
104	77.0	10.0	5.00	82	74	156	152	68	73
105	77.0	10.0	5.00	85	77	162	194	83	71
106	77.0	10.0	5.00	82	76	158	167	74	71
107	77.0	10.0	5.00	86	80	166	216	88	70
108	77.0	10.0	5.00	81	80	161	*	*	70
109	77.0	10.0	5.00	*	*	*	7	4	*
110	77.0	10.0	5.00	86	82	168	254	116	71
111	77.0	10.0	5.00	86	80	166	273	136	71
112	77.0	10.0	5.00	85	81	166	175	75	72
113	83.0	9.0	3.00	80	76	156	163	70	71
114	83.0	9.0	3.00	84	79	163	9	7	70
115	83.0	9.0	3.00	84	81	165	0	0	69
116	83.0	9.0	3.00	90	84	174	206	93	69
117	83.0	9.0	3.00	86	83	169	171	79	69
118	83.0	9.0	3.00	86	80	166	208	93	69
119	83.0	9.0	3.00	74	72	146	188	83	69
120	83.0	9.0	3.00	85	83	168	158	74	71
121	83.0	9.0	3.00	85	82	167	186	79	72
122	83.0	9.0	3.00	85	84	169	0	0	73
123	83.0	9.0	3.00	88	86	174	13	3	72
124	83.0	9.0	3.00	84	81	165	218	87	75
125	83.0	9.0	3.00	79	75	154	213	89	75
126	83.0	9.0	3.00	76	71	147	243	87	75
127	83.0	9.0	3.00	83	75	158	171	77	75
128	83.0	9.0	3.00	84	80	164	295	118	75
129	83.0	9.0	3.00	81	77	150	211	87	75
130	83.0	9.0	3.00	80	76	156	177	75	74
131	83.0	9.0	3.00	82	75	157	20	11	73

ROW	RFI	AHPrate	AHMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
132	83.0	9.0	3.00	86	80	166	19	10	73
133	83.0	9.0	3.00	88	81	169	150	66	74
134	83.0	9.0	3.00	88	82	170	196	80	73
135	83.0	9.0	3.00	84	79	163	*	*	73
136	83.0	9.0	3.00	*	*	*	219	94	*
137	83.0	9.0	3.00	83	76	159	239	96	72
138	83.0	9.0	3.00	83	79	162	49	12	72
139	83.0	9.0	3.00	82	78	160	23	10	73
140	83.0	9.0	3.00	88	81	169	29	9	74
141	80.1	9.0	4.60	86	82	168	199	88	74
142	80.1	9.0	4.60	82	78	160	206	91	74
143	80.1	9.0	4.60	86	81	167	244	97	74
144	80.1	9.0	4.60	85	80	165	218	94	74
145	80.1	9.0	4.60	88	81	169	250	107	74
146	80.1	9.0	4.60	88	82	170	25	9	74
147	80.1	9.0	4.60	85	78	163	15	9	74
148	80.1	9.0	4.60	89	84	173	*	*	74
149	80.1	9.0	4.60	*	*	*	220	83	*
150	80.1	9.0	4.60	87	83	170	25	*	75
151	80.1	9.0	4.60	87	84	171	2	1	*
152	80.1	9.0	4.60	88	85	173	1	1	75
153	80.1	9.0	4.60	87	84	171	133	64	75
154	80.1	9.0	4.60	83	77	160	2	4	75
155	80.1	9.0	4.60	85	79	164	*	*	75
156	80.1	9.0	4.60	*	*	*	183	90	*
157	80.1	9.0	4.60	81	79	160	170	85	75
158	80.1	9.0	4.60	79	76	155	4	2	76
159	80.1	9.0	4.60	84	82	166	223	98	76
160	80.1	9.0	4.60	82	79	161	133	67	76
161	80.1	9.0	4.60	87	84	171	*	*	76
162	80.1	9.0	4.60	*	*	*	*	*	*
163	80.1	9.0	4.60	*	*	*	*	*	*
164	80.1	9.0	4.60	*	*	*	*	*	*
165	80.1	9.0	4.60	*	*	*	*	*	*
166	80.1	9.0	4.60	*	*	*	80	57	*
167	80.1	9.0	4.60	84	83	167	9	4	76
168	80.1	9.0	4.60	84	82	166	189	92	76
169	80.1	9.0	4.60	84	80	164	184	91	76
170	80.1		4.60	86	82	168	109	62	76
171	80.1		4.60	89	85	174	0	0	75
172	80.1		4.60	88	84	172	0	0	75
173	80.1	9.0	4.60	91	85	176	27	21	75
174	80.1	9.0	4.60	90	85	175	*	*	73
175	80.1	9.0	4.60	*	*	*	*	*	*
176	*	*	*	*	*	*	*	*	*
177	*	*	*	*	*	*	*	*	*
178	*	*	*	*	*	*	*	*	*
179	*	*	*	*	*	*	49	14	*
180	*	*	*	85	81	166	24	10	81
181	*	*	*	85	80	165	180	86	81
182	*	*	*	84	81	165	218	92	81
183	*	*	*	86	84	170	209	94	81
184	*	*	*	83	83	166	202	87	81
185	*	*	*	81	79	160	2	2	81
186	*	*	*	80	79	159	132	69	82
187	*	*	*	74	72	146	3	1	81
188	*	*	*	83	75	158	141	63	81
189	*	*	*	88	83	171	*	*	81
190	*	*	*	*	*	*	166	80	*
191	*	*	*	88	81	169	144	72	81
192	*	*	*	88	82	170	*	*	77
193	93.0	5.1	6.30	*	*	*	220	121	*
194	93.0	5.1	6.30	87	78	165	163	80	82
195	93.0	5.1	6.30	87	82	169	54	23	82
196	93.0	5.1	6.30	88	80	168	124	53	82
197	93.0	5.1	6.30	89	84	173	154	59	81

ROW	RFI	AMPrate	AMMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
198	93.0	5.1	6.30	90	83	173	201	74	81
199	93.0	5.1	6.30	86	80	166	216	72	78
200	93.0	5.1	6.30	86	81	167	230	84	80
201	71.0	9.8	11.10	81	77	158	249	82	80
202	71.0	9.8	11.10	87	80	167	226	90	82
203	71.0	9.8	11.10	85	82	167	298	111	82
204	71.0	9.8	11.10	87	79	166	279	107	82
205	71.0	9.8	11.10	82	78	160	79	33	82
206	71.0	9.8	11.10	87	78	165	*	*	82
207	71.0	9.8	11.10	*	*	*	*	*	*
208	71.0	9.8	11.10	*	*	*	*	*	*
209	71.0	9.8	11.10	*	*	*	*	*	*
210	71.0	9.8	11.10	*	*	*	113	51	*
211	71.0	9.8	11.10	88	80	168	67	31	82
212	71.0	9.8	11.10	83	77	160	*	*	82
213	71.0	9.8	11.10	*	*	*	186	83	*
214	71.0	9.8	11.10	84	75	159	204	85	82
215	71.0	9.8	11.10	83	78	161	2	7	82
216	71.0	9.8	11.10	85	80	165	259	102	82
217	71.0	9.8	11.10	83	73	156	0	0	81
218	71.0	9.8	11.10	87	78	165	194	88	81
219	71.0	9.8	11.10	84	78	162	258	118	81
220	71.0	9.8	11.10	85	79	164	*	*	81
221	71.0	9.8	11.10	*	*	*	*	*	*
222	71.0	9.8	11.10	*	*	*	*	*	*
223	71.0	9.8	11.10	*	*	*	111	52	*
224	71.0	9.8	11.10	89	79	168	0	0	81
225	71.0	9.8	11.10	89	85	174	173	68	81
226	71.0	9.8	11.10	87	80	167	160	70	81
227	71.0	9.8	11.10	85	78	163	*	*	81
228	71.0	9.8	11.10	*	*	*	206	83	*
229	72.3	12.0	14.50	85	79	164	199	83	81
230	72.3	12.0	14.50	86	78	164	4	2	81
231	72.3	12.0	14.50	86	80	166	210	84	81
232	72.3	12.0	14.50	82	79	161	*	*	81
233	72.3	12.0	14.50	*	*	*	190	81	*
234	72.3	12.0	14.50	84	81	165	*	*	81
235	72.3	12.0	14.50	*	*	*	262	92	*
236	72.3	12.0	14.50	85	79	164	354	128	81
237	72.3	12.0	14.50	82	80	162	169	75	81
238	72.3	12.0	14.50	84	81	165	*	*	81
239	72.3	12.0	14.50	*	*	*	0	0	*
240	72.3	12.0	14.50	84	80	164	90	62	81
241	72.3	12.0	14.50	83	82	165	*	*	81
242	72.3	12.0	14.50	*	*	*	*	*	*
243	72.3	12.0	14.50	*	*	*	*	*	*
244	72.3	12.0	14.50	*	*	*	*	*	*
245	72.3	12.0	14.50	*	*	*	*	*	*
246	72.3	12.0	14.50	*	*	*	*	*	*
247	72.3	12.0	14.50	*	*	*	318	140	*
248	72.3	12.0	14.50	82	80	162	*	*	81
249	72.3	12.0	14.50	*	*	*	*	*	*
250	72.3	12.0	14.50	*	*	*	*	*	*
251	72.3	12.0	14.50	*	*	*	*	*	*
252	72.3	12.0	14.50	*	*	*	*	*	*
253	72.3	12.0	14.50	*	*	*	*	*	*
254	72.3	12.0	14.50	*	*	*	384	209	*
255	72.3	12.0	14.50	83	79	162	160	97	80
256	72.3	12.0	14.50	78	72	150	178	77	76
257	71.6	12.1	14.70	68	64	132	*	*	76
258	71.6	12.1	14.70	*	*	*	*	*	*
259	71.6	12.1	14.70	*	*	*	*	*	*
260	71.6	12.1	14.70	*	*	*	*	*	*
261	71.6	12.1	14.70	*	*	*	27	15	*
262	71.6	12.1	14.70	82	76	158	*	*	77
263	71.6	12.1	14.70	*	*	*	0	0	*

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
264	71.6	12.1	14.70	82	77	159	168	70	77
265	71.6	12.1	14.70	73	64	137	108	41	77
266	71.6	12.1	14.70	72	64	136	178	89	77
267	71.6	12.1	14.70	72	65	137	197	80	77
268	71.6	12.1	14.70	76	65	141	116	50	77
269	71.6	12.1	14.70	76	69	145	*	*	77
270	71.6	12.1	14.70	*	*	*	0	0	*
271	71.6	12.1	14.70	81	77	158	142	63	77
272	71.6	12.1	14.70	78	73	151	151	61	77
273	71.6	12.1	14.70	80	73	153	140	55	77
274	71.6	12.1	14.70	78	71	149	24	8	77
275	71.6	12.1	14.70	81	76	157	17	6	77
276	71.6	12.1	14.70	82	76	158	187	67	77
277	71.6	12.1	14.70	83	78	161	224	83	76
278	71.6	12.1	14.70	82	77	159	81	36	76
279	71.6	12.1	14.70	83	77	160	187	72	76
280	71.6	12.1	14.70	83	78	161	15	10	76
281	71.6	12.1	14.70	87	82	169	17	9	76
282	71.6	12.1	14.70	87	83	170	180	77	76
283	71.6	12.1	14.70	87	82	169	198	84	77
284	71.6	12.1	14.70	85	82	167	211	81	77
285	71.6	12.1	14.70	83	81	164	221	88	78
286	71.6	12.1	14.70	81	80	161	0	0	78
287	71.6	12.1	14.70	84	82	166	4	5	77
288	71.6	12.1	14.70	84	81	165	212	89	77
289	71.6	12.1	14.70	84	82	166	238	104	77
290	71.6	12.1	14.70	82	80	162	112	39	77
291	71.6	12.1	14.70	76	72	148	120	48	77
292	*	*	*	80	78	158	175	67	77
293	*	*	*	81	77	158	215	91	73
294	*	*	*	80	75	155	191	82	74
295	*	*	*	82	78	160	200	83	74
296	*	*	*	83	80	163	0	0	74
297	*	*	*	84	82	166	0	0	74
298	*	*	*	86	82	168	86	75	74
299	*	*	*	84	83	167	204	77	74
300	*	*	*	83	79	162	209	97	73
301	*	*	*	83	79	162	248	99	73
302	*	*	*	84	79	163	231	92	72
303	*	*	*	83	79	162	0	0	73
304	*	*	*	83	80	163	0	0	73
305	*	*	*	86	82	168	203	91	74
306	*	*	*	81	79	160	201	82	74
307	*	*	*	81	79	160	252	111	72
308	*	*	*	81	77	158	248	108	73
309	*	*	*	83	77	160	199	85	73
310	*	*	*	81	77	158	1	2	73
311	*	*	*	84	80	164	0	0	72
312	*	*	*	84	80	164	240	102	72
313	*	*	*	82	80	162	245	99	72
314	*	*	*	83	81	164	186	80	73
315	*	*	*	82	79	161	233	92	75
316	*	*	*	85	80	165	123	56	76
317	*	*	*	82	77	159	78	41	76
318	*	*	*	82	80	162	0	0	77
319	*	*	*	84	80	164	0	0	77
320	74.0	11.0	9.00	85	81	166	212	93	77
321	74.0	11.0	9.00	83	78	161	196	88	76
322	74.0	11.0	9.00	82	79	161	212	89	75
323	74.0	11.0	9.00	82	79	161	180	77	75
324	74.0	11.0	9.00	80	76	156	0	0	75
325	74.0	11.0	9.00	83	79	162	0	0	75
326	74.0	11.0	9.00	84	80	164	200	83	74
327	74.0	11.0	9.00	81	77	158	194	89	73
328	74.0	11.0	9.00	81	79	160	213	94	73
329	74.0	11.0	9.00	81	79	160	199	88	74

ROM	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
330	74.0	11.0	9.00	78	75	153	186	92	75
331	74.0	11.0	9.00	78	74	152	0	0	75
332	74.0	11.0	9.00	82	78	160	0	0	75
333	74.0	11.0	9.00	82	80	162	224	95	75
334	74.0	11.0	9.00	81	77	158	235	99	76
335	74.0	11.0	9.00	81	77	158	221	91	76
336	74.0	11.0	9.00	82	79	161	197	86	76
337	74.0	11.0	9.00	83	81	164	207	82	76
338	74.0	11.0	9.00	82	79	161	0	0	76
339	74.0	11.0	9.00	82	81	163	0	0	76
340	74.0	11.0	9.00	83	79	162	181	78	76
341	74.0	11.0	9.00	83	82	165	159	72	76
342	74.0	11.0	9.00	83	81	164	222	101	76
343	74.0	11.0	9.00	82	81	163	222	102	76
344	74.0	11.0	9.00	82	81	163	199	80	76
345	74.0	11.0	9.00	82	81	163	0	0	76
346	74.0	11.0	9.00	85	81	166	0	0	77
347	74.0	11.0	9.00	85	82	167	*	*	77
348	74.0	11.0	9.00	*	*	*	100	52	*
349	74.0	11.0	9.00	82	81	163	112	53	77
350	74.0	11.0	9.00	82	81	163	79	43	77
351	74.0	11.0	9.00	82	82	164	24	25	77
352	74.0	11.0	9.00	84	82	166	0	0	77
353	74.0	11.0	9.00	85	82	167	0	0	77
354	74.0	11.0	9.00	87	85	172	0	0	76
355	75.0	11.0	16.00	85	83	168	123	56	76
356	75.0	11.0	16.00	85	82	167	*	*	76
357	75.0	11.0	16.00	*	*	*	*	*	*
358	75.0	11.0	16.00	*	*	*	*	*	*
359	75.0	11.0	16.00	*	*	*	208	105	*
360	75.0	11.0	16.00	84	83	167	*	*	79
361	75.0	11.0	16.00	*	*	*	*	*	*
362	75.0	11.0	16.00	*	*	*	7	4	*
363	75.0	11.0	16.00	74	71	145	112	58	82
364	75.0	11.0	16.00	77	74	151	208	95	83
365	75.0	11.0	16.00	74	71	145	0	0	82
366	75.0	11.0	16.00	77	76	153	0	0	81
367	75.0	11.0	16.00	79	77	156	122	65	32
368	75.0	11.0	16.00	80	79	159	142	67	82
369	75.0	11.0	16.00	77	75	152	242	87	81
370	75.0	11.0	16.00	79	77	156	185	76	81
371	75.0	11.0	16.00	80	76	156	286	100	82
372	75.0	11.0	16.00	81	80	161	220	90	82
373	75.0	11.0	16.00	81	78	159	66	33	82
374	75.0	11.0	16.00	81	78	159	226	98	82
375	75.0	11.0	16.00	82	80	162	246	91	82
376	75.0	11.0	16.00	81	78	159	219	88	82
377	75.0	11.0	16.00	80	77	157	48	21	81
378	75.0	11.0	16.00	80	77	157	67	29	81
379	75.0	11.0	16.00	81	76	157	14	6	81
380	75.0	11.0	16.00	81	76	157	33	8	81
381	75.0	11.0	16.00	83	80	163	0	0	81
382	75.0	11.0	16.00	86	81	167	0	0	81
383	*	*	*	90	84	174	0	0	75
384	*	*	*	90	86	176	*	*	75
385	*	*	*	*	*	*	183	94	*
386	*	*	*	79	79	158	*	*	28
387	*	*	*	*	*	*	0	0	*
388	*	*	*	86	86	172	*	*	79
389	*	*	*	*	*	*	208	89	*
390	*	*	*	85	84	169	0	0	79
391	*	*	*	89	86	175	*	*	79
392	*	*	*	*	*	*	*	*	*
393	*	*	*	*	*	*	208	82	*
394	*	*	*	86	81	167	*	*	79
395	*	*	*	*	*	*	*	*	*

ROW	RFI	AMPrate	AMMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
396	*	*	*	*	*	*	213	87	*
397	*	*	*	84	82	166	*	*	79
398	*	*	*	*	*	*	*	*	*
399	*	*	*	*	*	*	223	92	*
400	*	*	*	82	81	163	0	123	79
401	*	*	*	80	80	160	306	116	79
402	*	*	*	83	82	165	276	*	78
403	*	*	*	83	82	165	*	*	78
404	*	*	*	*	*	*	*	*	*
405	*	*	*	*	*	*	*	1	*
406	*	*	*	*	*	*	4	1	*
407	*	*	*	84	82	166	4	93	79
408	*	*	*	85	81	166	207	91	79
409	*	*	*	81	81	162	200	42	79
410	*	*	*	80	79	159	88	37	79
411	*	*	*	82	82	164	90	*	79
412	*	*	*	82	81	163	*	11	79
413	*	*	*	*	*	*	28	87	*
414	*	*	*	84	79	163	207	13	80
415	*	*	*	79	75	154	33	71	80
416	*	*	*	84	75	159	170	80	80
417	*	*	*	81	74	155	181	7	80
418	*	*	*	83	76	159	15	2	80
419	*	*	*	80	76	156	3	54	80
420	*	*	*	80	76	156	136	7	80
421	*	*	*	80	78	158	14	46	80
422	*	*	*	85	83	168	104	47	78
423	*	*	*	84	82	166	106	74	83
424	*	*	*	81	80	161	172	51	83
425	*	*	*	82	81	163	131	90	83
426	*	*	*	77	75	152	206	95	83
427	*	*	*	84	83	167	236	79	83
428	*	*	*	87	85	172	194	14	84
429	*	*	*	85	83	168	62	78	84
430	*	*	*	85	83	168	201	84	84
431	*	*	*	85	82	167	189	68	84
432	*	*	*	85	83	168	162	94	84
433	*	*	*	83	82	165	234	111	84
434	*	*	*	81	81	162	276	98	84
435	*	*	*	81	80	161	242	26	84
436	*	*	*	75	75	150	40	0	84
437	*	*	*	81	81	162	0	2	83
438	*	*	*	82	82	164	5	28	83
439	77.0	17.0	23.00	87	87	174	7	*	83
440	77.0	17.0	23.00	86	84	170	28	2	83
441	77.0	17.0	23.00	87	86	173	*	1	83
442	77.0	17.0	23.00	*	*	*	5	93	*
443	77.0	17.0	23.00	86	84	170	9	94	83
444	77.0	17.0	23.00	88	87	175	218	55	83
445	77.0	17.0	23.00	83	82	165	220	0	83
446	77.0	17.0	23.00	80	78	158	117	*	83
447	77.0	17.0	23.00	81	78	159	0	*	83
448	77.0	17.0	23.00	83	81	164	*	0	83
449	77.0	17.0	23.00	*	*	*	*	*	*
450	77.0	17.0	23.00	*	*	*	0	0	*
451	77.0	17.0	23.00	83	81	164	*	8	82
452	77.0	17.0	23.00	*	*	*	0	73	*
453	77.0	17.0	23.00	83	81	164	12	*	83
454	77.0	17.0	23.00	86	83	169	77	*	83
455	77.0	17.0	23.00	86	82	168	*	71	83
456	77.0	17.0	23.00	*	*	*	*	*	*
457	77.0	17.0	23.00	*	*	*	57	*	*
458	77.0	17.0	23.00	83	81	164	*	*	80
459	77.0	17.0	23.00	*	*	*	*	*	*
460	77.0	17.0	23.00	*	*	*	*	*	*
461	77.0	17.0	23.00	*	*	*	*	95	*

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
462	77.0	17.0	23.00	*	*	*	*	61	*
463	77.0	17.0	23.00	*	*	*	94	133	*
464	77.0	17.0	23.00	89	87	176	89	112	84
465	77.0	17.0	23.00	85	82	167	244	88	85
466	77.0	17.0	23.00	79	79	158	276	106	85
467	77.0	17.0	14.00	77	76	153	227	6	85
468	77.0	17.0	14.00	81	80	161	259	0	84
469	77.0	17.0	14.00	81	79	160	14	1	84
470	77.0	17.0	14.00	83	82	165	0	72	84
471	77.0	17.0	14.00	86	85	171	6	89	84
472	77.0	17.0	14.00	85	85	170	181	86	84
473	77.0	17.0	14.00	82	82	164	192	86	84
474	74.0	17.0	14.00	82	80	162	196	77	84
475	74.0	17.0	14.00	86	83	169	205	19	84
476	74.0	17.0	14.00	83	81	164	184	44	83
477	74.0	17.0	14.00	86	80	166	89	100	83
478	74.0	17.0	14.00	81	75	156	103	22	83
479	74.0	17.0	14.00	83	81	164	251	39	83
480	74.0	17.0	14.00	87	83	170	43	12	83
481	74.0	17.0	14.00	87	84	171	93	85	83
482	74.0	17.0	14.00	83	80	163	28	96	83
483	74.0	17.0	14.00	82	80	162	208	87	83
484	74.0	17.0	14.00	82	80	162	225	5	83
485	74.0	17.0	14.00	82	79	161	181	10	81
486	74.0	17.0	14.00	81	79	160	7	75	80
487	74.0	17.0	14.00	82	82	164	21	*	81
488	74.0	17.0	14.00	85	84	169	184	76	81
489	74.0	17.0	14.00	88	86	174	*	89	81
490	74.0	17.0	14.00	*	*	*	198	93	*
491	74.0	17.0	14.00	85	83	168	233	3	81
492	74.0	17.0	14.00	85	80	165	222	6	81
493	74.0	17.0	14.00	83	79	162	7	84	81
494	74.0	17.0	14.00	84	82	166	11	3	81
495	74.0	9.0	7.00	82	79	161	179	93	82
496	74.0	9.0	7.00	82	81	163	11	9	83
497	74.0	9.0	7.00	87	83	170	217	79	83
498	74.0	9.0	7.00	83	80	163	25	68	84
499	74.0	9.0	7.00	86	81	167	217	67	84
500	74.0	9.0	7.00	82	80	162	217	4	84
501	74.0	9.0	7.00	83	82	165	201	9	84
502	52.0	9.0	7.00	82	80	162	7	90	83
503	52.0	9.0	7.00	83	80	163	21	81	83
504	52.0	9.0	7.00	86	82	168	200	79	83
505	52.0	9.0	7.00	86	82	168	203	2	83
506	52.0	9.0	7.00	84	80	164	204	88	83
507	52.0	9.0	7.00	84	80	164	13	133	83
508	52.0	9.0	7.00	87	83	170	220	123	83
509	52.0	9.0	7.00	85	82	167	323	84	84
510	52.0	9.0	7.00	82	80	162	306	10	84
511	52.0	9.0	7.00	80	79	159	203	75	84
512	52.0	9.0	7.00	86	83	169	33	0	84
513	52.0	9.0	7.00	85	82	167	183	0	84
514	52.0	9.0	7.00	80	75	155	0	*	84
515	52.0	9.0	7.00	82	80	162	0	81	84
516	52.0	9.0	7.00	85	82	167	*	81	*
517	52.0	9.0	7.00	*	*	*	195	71	*
518	52.0	9.0	7.00	82	78	160	215	0	85
519	52.0	9.0	7.00	84	81	165	156	4	85
520	52.0	9.0	7.00	84	78	162	0	80	83
521	52.0	9.0	7.00	87	83	170	11	71	83
522	52.0	9.0	7.00	89	84	173	194	83	83
523	52.0	7.0	7.00	89	83	172	209	5	83
524	52.0	7.0	7.00	90	84	174	201	71	82
525	52.0	7.0	7.00	85	81	166	10	7	82
526	52.0	7.0	7.00	90	83	173	154	*	82
527	52.0	7.0	7.00	89	82	171	12	24	82

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
528	52.0	7.0	7.00	90	84	174	*	90	81
529	52.0	7.0	7.00	*	*	*	48	74	*
530	52.0	7.0	8.00	90	84	174	214	28	81
531	52.0	7.0	8.00	88	80	168	166	86	81
532	52.0	10.0	8.00	85	79	164	66	23	81
533	52.0	10.0	8.00	89	83	172	207	8	80
534	52.0	10.0	8.00	89	83	172	72	82	80
535	52.0	10.0	8.00	90	85	175	10	82	80
536	52.0	10.0	8.00	90	85	175	197	75	80
537	77.0	10.0	8.00	85	79	164	207	61	80
538	77.0	10.0	8.00	84	78	162	186	11	80
539	77.0	10.0	8.00	86	81	167	149	4	80
540	77.0	10.0	8.00	85	79	164	26	89	72
541	77.0	10.0	8.00	89	84	173	6	128	73
542	77.0	10.0	8.00	88	82	170	215	125	72
543	77.0	10.0	8.00	86	82	168	305	79	72
544	77.0	10.0	8.00	88	85	173	312	89	73
545	77.0	10.0	8.00	84	81	165	203	1	75
546	77.0	10.0	8.00	86	84	170	231	0	79
547	77.0	10.0	8.00	82	80	162	2	97	79
548	77.0	10.0	8.00	86	84	170	0	82	81
549	77.0	10.0	8.00	87	87	174	207	94	82
550	77.0	10.0	8.00	85	84	169	186	74	82
551	77.0	10.0	8.00	84	83	167	205	1	81
552	77.0	10.0	8.00	82	79	161	168	95	81
553	77.0	10.0	8.00	86	85	171	1	89	81
554	77.0	10.0	8.00	86	84	170	232	102	81
555	77.0	10.0	8.00	89	86	175	213	4	81
556	77.0	10.0	8.00	88	83	168	232	1	81
557	77.0	10.0	8.00	88	86	174	20	96	81
558	77.0	10.0	12.00	86	85	171	1	90	81
559	77.0	10.0	12.00	90	85	175	241	85	81
560	77.0	10.0	12.00	86	84	170	183	*	81
561	77.0	10.0	12.00	89	83	172	176	0	81
562	77.0	10.0	12.00	86	83	169	*	1	80
563	77.0	10.0	12.00	*	*	*	0	84	*
564	77.0	10.0	12.00	85	85	170	1	58	80
565	66.0	10.0	12.00	88	86	174	192	51	80
566	66.0	10.0	12.00	85	84	169	137	57	81
567	66.0	10.0	12.00	83	79	162	110	*	81
568	66.0	10.0	12.00	85	82	167	111	*	81
569	66.0	10.0	12.00	88	84	172	*	*	81
570	66.0	10.0	12.00	*	*	*	*	*	*
571	66.0	10.0	12.00	*	*	*	*	*	*
572	66.0	10.0	12.00	*	*	*	*	1	*
573	66.0	10.0	12.00	*	*	*	*	0	*
574	66.0	10.0	12.00	*	*	*	2	0	*
575	66.0	10.0	12.00	88	84	172	0	82	81
576	66.0	10.0	12.00	88	85	173	0	81	81
577	66.0	10.0	12.00	84	79	163	179	71	80
578	66.0	10.0	12.00	85	83	168	179	8	81
579	66.0	10.0	12.00	85	85	170	174	*	81
580	66.0	10.0	12.00	88	88	176	22	59	81
581	66.0	10.0	12.00	89	89	178	*	*	80
582	66.0	10.0	12.00	*	*	*	114	*	*
583	66.0	10.0	12.00	90	86	176	*	6	83
584	66.0	10.0	12.00	*	*	*	*	0	*
585	66.0	10.0	12.00	*	*	*	0	*	*
586	66.0	10.0	*	91	88	179	*	88	84
587	66.0	10.0	*	*	*	*	216	92	*
588	66.0	10.0	*	87	87	174	194	96	84
589	66.0	10.0	*	86	86	172	217	*	84
590	66.0	10.0	*	86	86	172	*	6	84
591	66.0	10.0	*	*	*	*	27	43	*
392	66.0	10.0	*	88	87	175	88	72	84
593	*	10.0	*	90	88	178	179	2	83

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
594	*	10.0	*	87	84	171	5	8	83
595	*	9.0	*	87	86	173	15	0	83
596	*	9.0	*	89	86	175	0	*	83
597	*	9.0	*	90	87	177	*	*	83
598	72.0	7.6	15.00	*	*	*	115	76	*
599	72.0	7.6	15.00	90	84	174	145	80	80
600	72.0	7.6	15.00	88	85	173	153	65	80
601	72.0	7.6	15.00	85	81	166	*	*	80
602	72.0	7.6	15.00	*	*	*	51	18	*
603	72.0	7.6	15.00	86	86	172	162	80	79
604	72.0	7.6	15.00	91	86	177	195	86	79
605	72.0	7.6	15.00	86	82	168	252	106	79
606	72.0	7.6	15.00	86	81	167	5	3	79
607	74.5	7.8	5.70	84	80	164	16	8	79
608	74.5	7.8	5.70	89	85	174	190	83	79
609	74.5	7.8	5.70	85	82	167	218	89	79
610	74.5	7.8	5.70	89	86	175	195	91	79
611	74.5	7.8	5.70	86	84	170	219	95	79
612	74.5	7.8	5.70	84	80	164	*	*	80
613	74.5	7.8	5.70	*	*	*	*	*	*
614	74.5	7.8	5.70	*	*	*	*	*	*
615	74.5	7.8	5.70	*	*	*	*	*	*
616	74.5	7.8	5.70	*	*	*	36	16	*
617	74.5	7.8	5.70	89	84	173	150	72	81
618	74.5	7.8	5.70	82	77	159	130	59	79
619	74.5	7.8	5.70	84	76	160	0	0	79
620	74.5	7.8	5.70	87	81	168	*	*	79
621	74.5	7.8	5.70	*	*	*	3	2	*
622	74.5	7.8	5.70	89	80	169	150	62	79
623	74.5	7.8	5.70	87	79	166	216	82	78
624	74.5	7.8	5.70	87	82	169	86	29	78
625	74.5	7.8	5.70	87	82	169	21	11	78
626	74.5	7.8	5.70	92	86	178	20	8	76
627	74.5	7.8	5.70	89	84	173	182	78	76
628	74.5	7.8	5.70	88	83	171	281	100	76
629	74.5	7.8	5.70	88	83	171	7	3	76
630	74.5	7.8	5.70	91	86	177	218	84	76
631	74.5	7.8	5.70	87	83	170	208	83	76
632	74.5	7.8	5.70	90	86	176	222	101	77
633	74.5	7.8	5.70	91	86	177	*	*	78
634	74.5	7.8	5.70	*	*	*	*	*	*
635	74.5	7.8	5.70	*	*	*	*	*	*
636	74.5	7.8	5.70	*	*	*	*	*	*
637	74.5	7.8	5.70	*	*	*	0	0	*
638	74.5	7.8	5.70	84	81	165	*	*	77
639	74.5	7.8	5.70	*	*	*	244	101	*
640	74.5	7.8	5.70	88	80	168	148	63	76
641	74.5	7.8	5.70	83	82	165	*	*	76
642	70.1	9.4	7.60	83	*	*	*	*	*
643	70.1	9.4	7.60	*	*	*	*	*	*
644	70.1	9.4	7.60	*	*	*	*	*	*
645	70.1	9.4	7.60	*	*	*	164	64	*
646	70.1	9.4	7.60	*	*	*	0	0	77
647	70.1	9.4	7.60	84	83	167	129	48	77
648	70.1	9.4	7.60	86	81	167	253	94	77
649	70.1	9.4	7.60	82	78	160	241	102	77
650	70.1	9.4	7.60	87	83	170	233	95	77
651	70.1	9.4	7.60	84	81	165	158	70	77
652	70.1	9.4	7.60	87	83	170	164	68	77
653	70.1	9.4	7.60	86	81	167	26	11	77
654	70.1	9.4	7.60	87	79	166	2	1	77
655	70.1	9.4	7.60	88	83	171	181	181	77
656	70.1	9.4	7.60	90	86	176	193	95	77
657	70.1	9.4	7.60	90	86	176	200	82	76
658	70.1	9.4	7.60	89	86	175	231	100	76
659	70.1	9.4	7.60	88	86	174	9	8	77

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
660	70.1	9.4	7.60	87	82	169	201	79	78
661	70.1	9.4	7.60	86	83	169	178	76	78
662	70.1	9.4	7.60	86	83	169	171	77	78
663	70.1	9.4	7.60	87	82	169	*	*	78
664	70.1	9.4	7.60	86	80	166	22	17	*
665	70.1	9.4	7.60	*	*	*	211	90	78
666	70.1	9.4	7.60	89	85	174	179	77	78
667	70.1	9.4	7.60	85	82	167	166	76	78
668	70.1	9.4	7.60	83	81	164	161	80	77
669	70.1	9.4	7.60	82	79	161	177	77	78
670	65.9	9.4	10.00	82	80	162	57	19	78
671	65.9	9.4	10.00	82	79	161	28	11	78
672	65.9	9.4	10.00	87	83	170	178	75	77
673	65.9	9.4	10.00	87	83	170	227	92	77
674	65.9	9.4	10.00	88	83	171	176	73	77
675	65.9	9.4	10.00	86	81	167	162	76	77
676	65.9	9.4	10.00	86	82	168	15	9	76
677	65.9	9.4	10.00	89	86	175	254	112	76
678	65.9	9.4	10.00	89	86	175	234	115	75
679	65.9	9.4	10.00	85	83	168	255	118	75
680	65.9	9.4	10.00	87	84	171	248	113	75
681	65.9	9.4	10.00	83	80	163	199	93	76
682	65.9	9.4	10.00	84	80	164	137	49	78
683	65.9	9.4	10.00	85	81	166	53	19	78
684	65.9	9.4	10.00	85	82	167	0	0	78
685	65.9	9.4	10.00	83	81	164	168	81	78
686	65.9	9.4	10.00	86	82	168	*	*	78
687	65.9	9.4	10.00	87	82	169	*	*	*
688	65.9	9.4	10.00	*	*	*	136	66	*
689	65.9	9.4	10.00	*	*	*	*	*	78
690	65.9	9.4	10.00	85	81	166	*	*	*
691	65.9	9.4	10.00	*	*	*	0	0	*
692	65.9	9.4	10.00	*	*	*	2	1	78
693	65.9	9.4	10.00	86	79	165	*	*	78
694	65.9	9.4	10.00	87	81	168	154	73	*
695	65.9	9.4	10.00	*	*	*	9	5	78
696	65.9	9.4	10.00	88	85	173	4	3	79
697	65.9	9.4	10.00	90	85	175	168	83	79
698	68.9	10.6	8.20	90	84	174	108	56	78
699	68.9	10.6	8.20	87	85	172	3	2	77
700	68.9	10.6	8.20	88	83	171	8	3	77
701	68.9	10.6	8.20	91	86	177	70	41	77
702	68.9	10.6	8.20	91	86	177	180	93	77
703	68.9	10.6	8.20	92	87	179	166	83	77
704	68.9	10.6	8.20	91	87	178	178	85	77
705	68.9	10.6	8.20	88	84	172	16	10	77
706	68.9	10.6	8.20	83	83	166	10	10	77
707	68.9	10.6	8.20	87	86	173	218	100	77
708	68.9	10.6	8.20	88	86	174	240	106	77
709	68.9	10.6	8.20	87	83	170	202	94	77
710	68.9	10.6	8.20	86	82	168	268	111	77
711	68.9	10.6	8.20	86	83	169	*	*	77
712	68.9	10.6	8.20	87	84	171	183	88	*
713	68.9	10.6	8.20	*	*	*	11	5	77
714	68.9	10.6	8.20	84	83	167	227	95	77
715	68.9	10.6	8.20	88	88	176	*	*	77
716	68.9	10.6	8.20	87	86	173	227	106	*
717	68.9	10.6	8.20	*	*	*	236	110	77
718	68.9	10.6	8.20	87	87	174	236	101	77
719	68.9	10.6	8.20	87	87	174	30	13	77
720	68.9	10.6	8.20	88	88	176	5	4	77
721	68.9	10.6	8.20	90	88	178	218	102	77
722	68.9	10.6	8.20	91	90	181	242	108	77
723	68.9	10.6	8.20	90	87	177	217	97	77
724	68.9	10.6	8.20	86	83	169	211	91	76
725	68.9	10.6	8.20	88	86	174	214	95	77

ROM	RFI	AHPrate	AHMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
726	68.9	10.6	8.20	88	87	175	40	18	76
727	68.9	10.6	8.20	86	84	170	35	15	76
728	68.9	10.6	8.20	88	87	175	195	89	76
729	68.9	10.6	8.20	87	86	173	175	81	77
730	68.9	10.6	8.20	88	86	174	178	83	78
731	68.9	10.6	8.20	88	86	174	55	23	78
732	68.9	10.6	8.20	87	85	172	240	93	78
733	68.9	10.6	8.20	87	85	172	194	78	78
734	68.9	10.6	8.20	87	84	171	90	40	78
735	69.9	10.1	7.06	89	86	175	1	2	77
736	69.9	10.1	7.06	87	84	171	3	3	77
737	69.9	10.1	7.06	88	86	174	165	86	77
738	69.9	10.1	7.06	90	87	177	186	90	77
739	69.9	10.1	7.06	90	86	176	187	79	77
740	69.9	10.1	7.06	91	90	181	165	67	77
741	69.9	10.1	7.06	90	88	178	2	2	77
742	69.9	10.1	7.06	88	88	176	1	2	77
743	69.9	10.1	7.06	88	87	175	145	70	77
744	69.9	10.1	7.06	90	87	177	132	63	77
745	69.9	10.1	7.06	91	88	179	*	*	77
746	69.9	10.1	7.06	90	86	176	*	*	*
747	69.9	10.1	7.06	*	*	*	*	*	*
748	69.9	10.1	7.06	*	*	*	*	*	*
749	69.9	10.1	7.06	*	*	*	*	*	*
750	69.9	10.1	7.06	*	*	*	120	62	*
751	69.9	10.1	7.06	*	*	*	7	3	77
752	69.9	10.1	7.06	88	86	174	228	111	77
753	69.9	10.1	7.06	87	86	173	229	110	77
754	69.9	10.1	7.06	87	86	173	141	61	77
755	69.9	10.1	7.06	88	87	175	7	5	77
756	69.9	10.1	7.06	87	86	173	3	2	77
757	69.9	10.1	7.06	90	88	178	133	59	76
758	69.9	10.1	7.06	87	86	173	109	55	80
759	69.9	10.1	7.06	89	89	178	*	*	79
760	69.9	10.1	7.06	91	91	182	3	3	*
761	69.9	10.1	7.06	*	*	*	15	8	79
762	69.9	10.1	7.06	90	90	180	*	*	79
763	*	*	*	90	90	180	186	87	*
764	*	*	*	*	*	*	119	47	79
765	*	*	*	89	89	178	*	*	79
766	*	*	*	86	86	172	18	6	*
767	*	*	*	*	*	*	244	107	79
768	*	*	*	86	86	172	262	90	79
769	*	*	*	84	84	168	45	17	79
770	*	*	*	85	85	170	1	1	79
771	*	*	*	87	87	174	181	83	79
772	*	*	*	86	36	172	177	91	79
773	84.7	5.8	8.10	*	*	*	221	98	*
774	84.7	5.8	8.10	85	85	170	272	102	79
775	84.7	5.8	8.10	87	85	172	423	149	79
776	84.7	5.8	8.10	90	86	176	0	0	79
777	84.7	5.8	8.10	93	86	179	0	0	71
778	84.7	5.8	8.10	94	86	180	237	103	71
779	84.7	5.8	8.10	94	87	181	172	72	71
780	34.7	5.8	8.10	94	87	181	211	86	71
781	84.7	5.8	8.10	86	82	168	219	86	76
782	84.7	5.8	8.10	82	80	162	185	74	79
783	83.3	5.7	5.01	82	80	162	215	83	79
784	83.3	5.7	5.01	82	76	158	32	9	79
785	83.3	5.7	5.01	82	80	162	12	6	79
786	83.3	5.7	5.01	87	84	171	*	*	79
787	83.3	5.7	5.01	*	*	*	200	85	*
788	83.3	5.7	5.01	79	76	155	124	52	79
789	83.3	5.7	5.01	85	80	165	363	121	78
790	83.3	5.7	5.01	87	82	169	296	104	77
791	83.3	5.7	5.01	83	75	158	61	23	77

ROW	RFI	AWPrate	AHMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
792	83.3	5.7	5.01	87	82	169	170	69	77
793	83.3	5.7	5.01	86	80	166	1	3	85
794	83.3	5.7	5.01	86	81	167	184	78	85
795	83.3	5.7	5.01	85	81	166	13	8	85
796	83.3	5.7	5.01	81	74	155	86	42	85
797	83.3	5.7	5.01	85	76	161	106	51	85
798	83.3	5.7	5.01	86	80	166	98	40	84
799	83.3	5.7	5.01	92	86	178	*	*	74
800	83.3	5.7	5.01	*	*	*	*	*	*
801	83.3	5.7	5.01	*	*	*	6	3	*
802	83.3	5.7	5.01	89	83	172	1	1	71
803	83.3	5.7	5.01	87	84	171	207	84	76
804	83.3	5.7	5.01	80	77	157	233	97	78
805	83.3	5.7	5.01	81	77	158	32	11	79
806	83.3	5.7	5.01	85	81	166	254	102	79
807	83.3	5.7	5.01	85	80	165	189	77	79
808	83.3	5.7	5.01	90	86	176	237	96	79
809	83.3	5.7	5.01	87	84	171	162	76	79
810	83.3	5.7	5.01	87	84	171	4	4	79
811	83.3	5.7	5.01	92	87	179	19	7	79
812	83.3	5.7	5.01	89	84	173	174	74	79
813	83.3	5.7	5.01	90	86	176	367	140	79
814	83.3	5.7	5.01	88	84	172	148	67	80
815	83.3	5.7	5.01	88	86	174	248	107	80
816	83.3	5.7	5.01	89	85	174	228	105	80
817	83.3	5.7	5.01	86	83	169	3	2	78
818	*	*	*	94	88	182	14	9	78
819	*	*	*	91	86	177	233	92	79
820	*	*	*	90	87	177	206	86	79
821	*	*	*	91	87	178	226	99	79
822	*	*	*	91	86	177	227	95	78
823	*	*	*	90	83	173	223	93	78
824	*	*	*	92	86	178	1	1	78
825	*	*	*	91	86	177	0	0	79
826	*	*	*	89	87	176	283	108	79
827	*	*	*	86	84	170	214	85	79
828	*	*	*	90	86	176	248	103	79
829	*	*	*	90	86	176	254	103	80
830	*	*	*	90	84	174	31	10	80
831	*	*	*	90	84	174	249	104	79
832	*	*	*	90	85	175	227	97	80
833	*	*	*	85	80	165	14	9	80
834	*	*	*	88	86	174	41	16	80
835	*	*	*	90	88	178	219	91	80
836	*	*	*	85	84	169	139	61	80
837	*	*	*	85	84	169	78	36	80
838	*	*	*	89	86	175	0	0	79
839	*	*	*	89	87	176	0	0	78
840	*	*	*	90	85	175	0	0	78
841	*	*	*	90	86	176	222	95	79
842	*	*	*	85	81	166	239	99	79
843	*	*	*	89	85	174	234	91	80
844	*	*	*	89	86	175	199	83	80
845	*	*	*	86	85	171	222	90	80
846	*	*	*	85	84	169	215	90	80
847	*	*	*	89	88	177	123	56	80
848	*	*	*	90	88	178	*	*	80
849	*	*	*	*	*	*	*	*	*
850	*	*	*	*	*	*	*	*	*
851	*	*	*	*	*	*	*	*	*
852	*	*	*	*	*	*	*	*	*
853	*	*	*	*	*	*	2	2	*
854	*	*	*	92	89	181	1	1	78
855	*	*	*	91	89	180	205	89	80
856	*	*	*	90	88	178	200	89	80
857	*	*	*	91	86	177	*	*	80

ROM	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
858	*	*	*	*	*	*	2	1	*
859	*	*	*	93	88	181	265	106	80
860	*	*	*	91	89	180	285	127	79
861	*	*	*	90	89	179	309	130	79
862	*	*	*	91	89	180	346	144	79
863	*	*	*	90	86	176	306	119	79
864	*	*	*	90	87	177	35	11	79
865	*	*	*	90	84	174	222	90	79
866	*	*	*	95	92	187	21	9	79
867	*	*	*	91	87	178	9	6	79
868	*	*	*	90	87	177	248	99	79
869	*	*	*	89	84	173	279	117	79
870	*	*	*	86	81	167	234	97	79
871	*	*	*	88	84	172	38	12	77
872	*	*	*	94	90	184	132	58	77
873	*	*	*	94	90	184	280	117	77
874	*	*	*	92	90	182	299	122	77
875	*	*	*	95	94	189	64	21	77
876	*	*	*	94	92	186	18	2	77
877	*	*	*	91	88	179	193	86	77
878	*	*	*	91	88	179	84	40	77
879	*	*	*	94	91	185	157	65	78
880	*	*	*	90	89	179	*	*	78
881	*	*	*	*	*	*	*	*	*
882	*	*	*	*	*	*	*	*	*
883	*	*	*	*	*	*	*	*	*
884	*	*	*	*	*	*	60	15	*
885	*	*	*	87	86	173	14	7	79
886	*	*	*	90	87	177	260	107	79
887	*	*	*	90	86	176	8	3	79
888	*	*	*	90	87	177	236	93	79
889	*	*	*	90	87	177	184	79	79
890	*	*	*	89	87	176	2	2	79
891	*	*	*	92	91	183	4	3	79
892	*	*	*	92	91	183	0	0	79
893	*	*	*	94	92	186	212	92	79
894	*	*	*	91	90	181	45	19	77
895	*	*	*	90	88	178	276	124	77
896	*	*	*	88	84	172	*	*	85
897	*	*	*	*	*	*	19	6	*
898	*	*	*	88	83	171	*	*	84
899	*	*	*	*	*	*	*	*	*
900	*	*	*	*	*	*	*	*	*
901	*	*	*	*	*	*	3	1	*
902	*	*	*	90	85	175	19	7	86
903	*	*	*	91	83	174	2	2	86
904	*	*	*	93	85	178	16	5	86
905	*	*	*	94	86	180	147	73	86
906	*	*	*	93	85	178	238	103	86
907	*	*	*	92	84	176	177	79	86
908	*	*	*	92	85	177	8	4	86
909	*	*	*	93	87	180	7	4	86
910	*	*	*	93	88	181	3	1	86
911	*	*	*	92	87	179	35	16	86
912	*	*	*	91	86	177	6	4	86
913	*	*	*	94	90	184	*	*	86
914	*	*	*	*	*	*	*	*	*
915	*	*	*	*	*	*	54	27	*
916	*	*	*	91	88	179	86	50	28
917	*	*	*	90	88	178	137	58	79
918	*	*	*	85	84	169	206	80	80
919	*	*	*	85	84	169	232	91	80
920	80.0	7.6	11.20	89	85	174	38	9	78
921	80.0	7.6	11.20	94	89	183	185	34	79
922	80.0	7.6	11.20	94	89	183	220	86	79
923	80.0	7.6	11.20	88	85	173	125	47	79

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
924	80.0	7.6	11.20	85	83	168	281	102	79
925	80.0	7.6	11.20	88	83	171	160	65	78
926	80.0	7.6	11.20	86	80	166	216	81	78
927	80.0	7.6	11.20	83	81	164	299	116	78
928	80.0	7.6	11.20	80	[illegible]	160	180	69	78
929	80.0	7.6	11.20	83	81	164	249	92	77
930	80.0	7.6	11.20	84	80	164	*	*	77
931	80.0	7.6	11.20	*	*	*	241	87	*
932	80.0	7.6	11.20	85	84	169	*	*	78
933	80.0	7.6	11.20	*	*	*	*	*	*
934	80.0	7.6	11.20	*	*	*	0	0	*
935	80.0	7.6	11.20	85	85	170	96	48	76
936	80.0	7.6	11.20	84	80	164	182	72	77
937	80.0	7.6	11.20	85	84	169	113	56	77
938	80.0	7.6	11.20	85	84	169	*	*	77
939	80.0	7.6	11.20	*	*	*	137	58	*
940	80.0	7.6	11.20	83	82	165	223	93	76
941	*	*	*	85	85	170	97	28	76
942	*	*	*	88	87	175	155	61	76
943	*	*	*	89	87	176	132	44	76
944	*	*	*	93	90	183	166	57	76
945	*	*	*	92	89	181	185	65	76
946	*	*	*	92	89	181	38	13	76
947	*	*	*	93	89	182	251	75	76
948	*	*	*	91	87	178	186	63	72
949	*	*	*	96	95	191	*	*	74
950	*	*	*	*	*	*	*	*	*
951	*	*	*	*	*	*	*	*	*
952	*	*	*	*	*	*	121	71	*
953	*	*	*	95	92	187	*	*	74
954	*	*	*	*	*	*	*	*	*
955	*	*	*	*	*	*	*	*	*
956	*	*	*	*	*	*	219	111	*
957	*	*	*	87	83	170	257	151	80
958	*	*	*	87	86	173	263	106	81
959	*	*	*	82	81	163	75	38	81
960	*	*	*	80	80	160	69	27	80
961	*	*	*	84	82	166	55	16	79
962	*	*	*	87	84	171	*	*	79
963	*	*	*	*	*	*	*	*	*
964	*	*	*	*	*	*	*	*	*
965	*	*	*	*	*	*	188	75	*
966	*	*	*	85	82	167	0	0	79
967	*	*	*	84	80	164	139	65	79
968	*	*	*	80	75	155	190	82	80
969	78.8	7.2	6.30	81	79	160	127	60	81
970	78.8	7.2	6.30	82	80	162	21	10	80
971	78.8	7.2	6.30	87	83	170	225	93	80
972	78.8	7.2	6.30	86	84	170	60	23	79
973	78.8	7.2	6.30	85	83	168	284	116	80
974	78.8	7.2	6.30	77	72	149	283	106	81
975	78.8	7.2	6.30	80	78	158	*	*	80
976	78.8	7.2	6.30	*	*	*	*	*	*
977	78.8	7.2	6.30	*	*	*	*	*	*
978	78.8	7.2	6.30	*	*	*	*	*	*
979	78.8	7.2	6.30	*	*	*	263	96	*
980	78.8	7.2	6.30	87	84	171	148	65	80
981	78.8	7.2	6.30	85	81	166	274	106	80
982	78.8	7.2	6.30	85	82	167	156	62	79
983	78.8	7.2	6.30	86	83	169	5	4	79
984	78.8	7.2	6.30	86	85	171	83	40	79
985	78.8	7.2	6.30	85	84	169	*	*	79
986	78.8	7.2	6.30	*	*	*	*	*	*
987	78.8	7.2	6.30	*	*	*	2	2	*
988	78.8	7.2	6.30	88	84	172	18	6	80
989	78.8	7.2	6.30	91	88	179	10	3	78

ROM	RFI	AMPrate	AMMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
990	78.8	7.2	6.30	90	88	178	200	81	78
991	78.8	7.2	6.30	90	85	175	25	67	78
992	78.8	7.2	6.30	89	86	175	285	113	78
993	78.8	7.2	6.30	81	80	161	208	91	78
994	78.8	7.2	6.30	78	76	154	14	5	79
995	78.8	7.2	6.30	80	79	159	55	23	79
996	78.8	7.2	6.30	85	82	167	3	3	79
997	80.9	10.3	7.40	85	83	168	1	1	80
998	80.9	10.3	7.40	84	80	164	7	4	80
999	80.9	10.3	7.40	83	83	166	170	79	80
1000	80.9	10.3	7.40	83	83	166	179	65	80
1001	80.9	10.3	7.40	80	78	158	221	87	80
1002	80.9	10.3	7.40	84	83	167	178	77	78
1003	80.9	10.3	7.40	83	80	163	*	77	78
1004	80.9	10.3	7.40	83	80	163	213	98	78
1005	80.9	10.3	7.40	80	77	157	1	2	77
1006	80.9	10.3	7.40	84	80	164	0	1	80
1007	80.9	10.3	7.40	86	84	170	187	84	79
1008	80.9	10.3	7.40	83	80	163	170	78	79
1009	80.9	10.3	7.40	86	84	170	53	19	80
1010	80.9	10.3	7.40	84	80	164	182	93	79
1011	80.9	10.3	7.40	85	80	165	50	19	79
1012	80.9	10.3	7.40	85	81	166	67	27	79
1013	80.9	10.3	7.40	86	83	169	224	96	77
1014	80.9	10.3	7.40	86	83	169	238	104	78
1015	80.9	10.3	7.40	85	84	169	224	98	77
1016	80.9	10.3	7.40	84	81	165	178	75	77
1017	80.9	10.3	7.40	81	78	159	215	90	76
1018	80.9	10.3	7.40	80	79	159	10	2	74
1019	80.9	10.3	7.40	83	83	166	0	0	74
1020	80.9	10.3	7.40	86	86	172	0	0	74
1021	80.9	10.3	7.40	90	87	177	4	2	74
1022	80.9	10.3	7.40	90	83	173	180	82	74
1023	80.9	10.3	7.40	83	80	163	88	40	75
1024	80.9	10.3	7.40	85	79	164	195	87	76
1025	*	*	*	86	82	168	245	106	76
1026	*	*	*	91	86	177	193	84	76
1027	*	*	*	87	84	171	198	83	77
1028	*	*	*	86	82	168	225	94	77
1029	*	*	*	93	79	172	22	9	76
1030	*	*	*	83	85	168	*	*	76
1031	*	*	*	86	*	*	*	*	*
1032	*	*	*	*	*	*	*	*	*
1033	*	*	*	*	*	*	*	*	*
1034	*	*	*	*	*	*	*	*	*
1035	*	*	*	*	*	*	*	*	*
1036	*	*	*	*	*	*	13	7	*
1037	*	*	*	90	86	176	0	*	76
1038	*	*	*	*	*	*	0	*	*
1039	*	*	*	*	*	*	4	2	*
1040	*	*	*	91	83	174	122	66	76
1041	*	*	*	93	85	178	167	67	76
1042	*	*	*	89	82	171	236	143	77
1043	*	*	*	84	82	166	305	115	77
1044	*	*	*	82	81	163	270	124	77
1045	*	*	*	82	82	164	270	120	76
1046	*	*	*	80	80	160	266	113	76
1047	*	*	*	86	83	169	239	98	76
1048	*	*	*	87	84	171	320	61	77
1049	*	*	*	85	82	167	266	119	77
1050	*	*	*	84	83	167	192	112	78
1051	*	*	*	93	90	183	*	*	78
1052	*	*	*	*	*	*	*	*	*
1053	*	*	*	*	*	*	*	*	*
1054	*	*	*	*	*	*	*	*	*
1055	*	*	*	*	*	*	*	*	*

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
1056	*	*	*	*	*	*	*	*	*
1057	*	*	*	*	*	*	*	*	*
1058	*	*	*	*	*	*	*	*	*
1059	*	*	*	*	*	*	*	*	*
1060	*	*	*	*	*	*	*	*	*
1061	*	*	*	*	*	*	16	8	*
1062	*	*	*	89	87	176	2	1	79
1063	*	*	*	87	87	174	232	103	79
1064	*	*	*	82	80	162	252	112	79
1065	*	*	*	90	89	179	270	109	79
1066	*	*	*	85	84	169	289	119	79
1067	*	*	*	85	83	168	269	124	79
1068	*	*	*	85	84	169	330	108	79
1069	*	*	*	84	84	168	244	107	79
1070	*	*	*	87	87	174	11	3	79
1071	*	*	*	82	78	160	182	66	79
1072	*	*	*	86	85	171	323	146	79
1073	*	*	*	84	82	166	223	97	79
1074	*	*	*	84	83	167	137	65	79
1075	*	*	*	85	85	170	0	0	79
1076	*	*	*	85	84	169	12	3	79
1077	*	*	*	86	83	169	124	62	79
1078	*	*	*	89	86	175	7	2	79
1079	*	*	*	88	85	173	144	70	79
1080	*	*	*	87	85	172	4	3	79
1081	*	*	*	88	85	173	6	3	79
1082	*	*	*	89	87	176	17	11	79
1083	*	*	*	89	86	175	10	5	78
1084	*	*	*	87	85	172	5	2	79
1085	*	*	*	90	88	178	190	88	79
1086	*	*	*	89	88	177	0	0	79
1087	*	*	*	88	88	176	197	94	79
1088	*	*	*	88	87	175	114	64	79
1089	*	*	*	89	88	177	3	1	79
1090	*	*	*	88	86	174	5	2	78
1091	*	*	*	89	89	178	0	0	78
1092	*	*	*	88	86	174	4	1	78
1093	*	*	*	88	86	174	73	37	77
1094	*	*	*	88	85	173	98	43	78
1095	*	*	*	88	85	173	152	74	78
1096	*	*	*	82	79	161	33	16	77
1097	*	*	*	86	82	168	88	45	75
1098	*	*	*	86	84	170	31	4	75
1099	*	*	*	86	80	166	36	40	75
1100	*	*	*	84	83	167	*	*	75
1101	*	*	*	*	*	*	184	86	*
1102	*	*	*	86	82	168	*	*	75
1103	*	*	*	*	*	*	*	*	*
1104	*	*	*	*	*	*	5	5	*
1105	*	*	*	86	83	169	6	3	75
1106	*	*	*	88	87	175	1	1	75
1107	*	*	*	88	87	175	179	85	75
1108	*	*	*	84	83	167	72	41	75
1109	*	*	*	84	83	167	16	5	75
1110	*	*	*	90	85	175	*	*	75
1111	*	*	*	*	*	*	*	*	*
1112	*	*	*	*	*	*	*	*	*
1113	*	*	*	*	*	*	28	[illegible]	*
1114	*	*	*	86	85	171	9	3	82
1115	*	*	*	92	90	182	14	5	82
1116	*	*	*	93	88	181	38	19	82
1117	*	*	*	93	91	184	164	70	82
1118	*	*	*	88	82	170	173	84	82
1119	*	*	*	91	88	179	8	5	82
1120	*	*	*	95	92	187	10	4	84
1121	*	*	*	*	*	*	98	52	*

ROW	RFI	AHPrate	AMMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
1122	*	*	*	79	76	158	191	104	34
1123	*	*	*	70	79	149	200	90	66
1124	*	*	*	70	78	148	157	99	82
1125	*	*	*	76	75	151	68	64	83
1126	*	*	*	86	83	169	0	0	83
1127	*	*	*	92	84	176	104	41	83
1128	*	*	*	88	80	168	209	59	83
1129	*	*	*	73	70	143	189	88	83
1130	*	*	*	84	81	165	208	93	83
1131	*	*	*	2	79	161	146	54	84
1132	*	*	*	85	81	166	217	83	84
1133	*	*	*	80	75	155	*	*	84
1134	*	*	*	*	*	*	282	96	*
1135	*	*	*	82	79	161	203	73	84
1136	*	*	*	82	76	158	75	30	84
1137	*	*	*	80	75	155	262	101	84
1138	*	*	*	82	77	159	204	85	84
1139	*	*	*	80	74	154	204	82	84
1140	*	*	*	81	75	156	*	*	84
1141	*	*	*	*	*	*	*	*	*
1142	*	*	*	*	*	*	*	*	*
1143	*	*	*	*	*	*	5	3	*
1144	*	*	*	82	81	163	0	0	83
1145	*	*	*	80	78	158	227	95	83
1146	*	*	*	78	75	153	*	*	85
1147	76.0	13.0	19.00	*	*	*	253	102	*
1148	76.0	13.0	19.00	77	76	153	261	104	83
1149	76.0	13.0	19.00	83	82	165	194	68	82
1150	76.0	13.0	19.00	82	76	158	301	120	82
1151	76.0	13.0	19.00	84	82	166	*	*	82
1152	76.0	13.0	19.00	*	*	*	*	*	*
1153	76.0	13.0	19.00	*	*	*	*	*	*
1154	76.0	13.0	19.00	*	*	*	*	*	*
1155	76.0	13.0	19.00	*	*	*	*	*	*
1156	76.0	13.0	19.00	*	*	*	316	254	*
1157	76.0	13.0	19.00	82	76	158	197	80	83
1158	76.0	13.0	19.00	78	70	145	252	116	84
1159	76.0	13.0	19.00	80	70	150	228	104	83
1160	76.0	13.0	19.00	80	76	156	214	101	82
1161	76.0	13.0	19.00	81	75	156	194	77	83
1162	76.0	13.0	19.00	81	71	152	*	*	83
1163	76.0	13.0	19.00	*	*	*	*	*	*
1164	76.0	13.0	19.00	*	*	*	0	0	*
1165	76.0	13.0	19.00	82	78	160	*	*	83
1166	76.0	13.0	19.00	*	*	*	*	*	*
1167	76.0	13.0	19.00	*	*	*	0	0	*
1168	76.0	13.0	19.00	85	80	165	1	1	84
1169	76.0	13.0	19.00	89	85	174	193	90	82
1170	76.0	13.0	19.00	83	80	163	210	76	82
1171	76.0	13.0	19.00	85	82	167	93	50	82
1172	76.0	13.0	19.00	85	81	166	2	2	81
1173	76.0	13.0	19.00	85	84	169	212	91	81
1174	76.0	13.0	19.00	83	80	163	*	*	81
1175	76.0	13.0	19.00	*	*	*	*	*	*
1176	76.0	13.0	19.00	*	*	*	*	*	*
1177	76.0	13.0	19.00	*	*	*	*	*	*
1178	76.0	13.0	19.00	*	*	*	268	138	*
1179	76.0	13.0	19.00	88	82	170	*	*	83
1180	76.0	13.0	19.00	*	*	*	74	25	*
1181	76.0	13.0	19.00	92	82	174	276	114	84
1182	72.0	9.0	6.00	85	75	160	235	83	84
1183	72.0	9.0	6.00	88	75	163	245	93	83
1184	72.0	9.0	6.00	88	78	166	151	59	82
1185	72.0	9.0	6.00	87	74	161	233	87	82
1186	72.0	9.0	6.00	83	74	157	*	*	82
1187	72.0	9.0	6.00	*	*	*	*	*	*

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
1188	72.0	9.0	6.00	*	*	*	*	*	*
1189	72.0	9.0	6.00	*	*	*	*	*	*
1190	72.0	9.0	6.00	*	*	*	*	*	*
1191	72.0	9.0	6.00	*	*	*	285	72	*
1192	72.0	9.0	6.00	89	77	166	214	81	83
1193	72.0	9.0	6.00	88	78	166	201	77	83
1194	72.0	9.0	6.00	84	72	156	276	104	82
1195	72.0	9.0	6.00	84	72	156	302	109	82
1196	72.0	9.0	6.00	85	76	161	302	108	82
1197	72.0	9.0	6.00	88	77	165	281	113	82
1198	72.0	9.0	6.00	84	72	156	297	121	81
1199	72.0	9.0	6.00	84	74	158	152	56	81
1200	72.0	9.0	6.00	84	72	156	*	*	81
1201	72.0	9.0	6.00	*	*	*	*	*	*
1202	72.0	9.0	6.00	*	*	*	*	*	*
1203	72.0	9.0	6.00	*	*	*	0	0	*
1204	72.0	9.0	6.00	83	75	158	245	97	80
1205	72.0	9.0	6.00	88	83	171	172	70	81
1206	72.0	9.0	6.00	88	83	171	185	78	81
1207	72.0	9.0	6.00	85	80	165	12	7	82
1208	72.0	9.0	6.00	87	82	169	*	*	83
1209	72.0	9.0	6.00	*	*	*	*	*	*
1210	72.0	9.0	6.00	*	*	*	*	*	*
1211	72.0	9.0	6.00	*	*	*	28	16	*
1212	72.0	9.0	6.00	87	81	168	213	86	83
1213	72.0	9.0	6.00	84	80	164	191	75	82
1214	72.0	9.0	6.00	84	82	166	196	78	82
1215	72.0	9.0	6.00	89	83	172	200	86	82
1216	72.0	9.0	6.00	88	81	169	8	3	81
1217	*	*	*	89	81	170	*	*	81
1218	*	*	*	*	*	*	*	*	*
1219	*	*	*	*	*	*	*	*	*
1220	*	*	*	*	*	*	9	2	*
1221	*	*	*	89	82	171	*	*	83
1222	*	*	*	*	*	*	0	0	*
1223	*	*	*	89	82	171	0	0	83
1224	*	*	*	88	80	168	203	92	83
1225	*	*	*	87	80	167	188	90	82
1226	*	*	*	85	81	166	168	89	81
1227	*	*	*	85	80	165	198	86	82
1228	*	*	*	85	81	166	7	6	84
1229	*	*	*	88	86	174	*	*	83
1230	*	*	*	*	*	*	*	*	*
1231	*	*	*	*	*	*	*	*	*
1232	*	*	*	*	*	*	*	*	*
1233	*	*	*	*	*	*	*	*	*
1234	*	*	*	*	*	*	20	7	*
1235	*	*	*	88	84	172	*	*	82
1236	*	*	*	*	*	*	*	*	*
1237	*	*	*	*	*	*	73	30	*
1238	*	*	*	88	83	171	231	96	81
1239	*	*	*	87	85	172	215	93	82
1240	*	*	*	87	84	171	222	97	82
1241	*	*	*	86	84	170	231	94	83
1242	*	*	*	84	80	164	174	78	83
1243	*	*	*	84	81	165	188	69	83
1244	*	*	*	87	84	171	275	111	82
1245	*	*	*	84	82	166	5	2	82
1246	*	*	*	93	88	181	187	74	81
1247	*	*	*	90	86	176	263	108	81
1248	*	*	*	87	82	169	256	102	83
1249	*	*	*	87	83	170	*	*	82
1250	*	*	*	*	*	*	*	*	*
1251	*	*	*	*	*	*	*	*	*
1252	*	*	*	*	*	*	*	*	*
1253	*	*	*	*	*	*	281	118	*

ROW	RFI	AWPrate	AWMrate	MC	FMC	RI	FlyHours	FMCSort	ACond
1254	*	*	*	88	85	173	*	*	81
1255	*	*	*	*	*	*	*	*	*
1256	*	*	*	*	*	*	*	*	*
1257	*	*	*	*	*	*	0	0	*
1258	*	*	*	91	88	179	7	3	81
1259	*	*	*	90	85	175	259	112	80
1260	*	*	*	88	83	171	*	*	81

ROW	COD&VOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
1	0	*	*	0	0	0	0	1
2	1	*	*	0	300	*	300	2
3	2	9	1	0	0	0	0	3
4	3	21	*	0	0	0	0	4
5	4	4	4	0	0	0	0	5
6	5	10	5	0	0	0	0	6
7	0	16	4	0	0	1300	1300	7
8	1	18	9	0	0	0	0	8
9	0	21	10	0	0	7300	7300	9
10	1	17	15	0	5000	0	5000	10
11	2	68	15	0	0	2281	2281	11
12	0	31	19	0	0	2325	2325	12
13	0	20	21	0	3500	*	3500	13
14	0	33	25	0	*	650	650	14
15	0	11	29	0	2100	3500	5600	15
16	0	25	29	0	1800	545	2345	16
17	0	30	26	0	680	0	680	17
18	0	*	24	1	*	0	0	0
19	0	*	*	1	*	0	0	0
20	0	*	*	1	*	0	0	0
21	0	7	*	0	0	260	260	1
22	1	27	30	0	0	0	0	2
23	0	17	29	0	0	0	0	3
24	1	14	32	0	1200	*	1200	4
25	2	*	33	0	*	0	0	5
26	3	11	*	0	0	0	0	6
27	4	41	34	0	0	0	0	7
28	0	36	37	0	0	692	692	8
29	1	0	39	0	0	0	0	9
30	0	12	38	0	0	500	500	10
31	0	20	32	0	1600	1200	2800	11
32	0	16	34	0	2000	0	2000	12
33	1	17	36	0	10000	*	10000	13
34	0	*	35	0	*	0	0	14
35	0	20	*	0	650	1600	2250	15
36	1	14	37	0	275	0	275	16
37	0	20	39	0	0	10050	10050	17
38	1	*	39	0	1400	*	1400	18
39	0	*	32	1	*	*	0	0
40	0	*	*	1	*	*	0	0
41	0	*	*	1	*	*	0	0
42	0	*	*	1	*	*	0	0
43	0	*	25	1	*	*	0	0
44	0	*	*	1	*	*	0	0
45	0	*	*	1	*	*	0	0
46	0	*	*	1	*	*	0	0
47	0	*	*	1	*	*	0	0
48	0	*	*	1	*	*	0	0
49	0	*	*	1	*	*	0	0
50	0	4	12	1	*	0	0	0
51	*	0	*	0	0	0	0	1
52	0	4	24	0	0	450	450	2
53	0	15	14	0	177	0	177	3
54	0	19	13	0	1650	3228	4878	4
55	0	10	12	0	600	943	1543	5
56	0	20	10	0	1300	270	1570	6
57	0	33	12	0	659	2730	3389	7
58	0	13	11	0	1020	4989	6009	8
59	0	21	16	0	2000	2992	4992	9
60	0	30	15	0	1000	1300	2300	10
61	0	23	16	0	1500	135	1635	11
62	1	15	19	0	1700	*	1700	12
63	0	17	26	2	0	*	0	13
64	0	0	25	2	*	*	0	14
65	0	0	*	2	*	*	0	15

ROH	COCGVOD	Cannib	NQPAHP	Inport	Cargo	Mail	Tweight	DaysPort
66	0	0	*	2	*	0	0	16
67	1	0	*	2	0	356	356	17
68	2	8	23	0	3500	0	3500	18
69	3	21	22	0	0	0	0	19
70	0	22	18	0	0	210	210	20
71	0	20	16	0	675	7000	7675	21
72	0	18	16	0	1500	256	1756	22
73	0	32	16	0	1505	1750	3255	23
74	0	20	20	0	500	2975	3475	24
75	0	24	12	0	0	2850	2850	25
76	0	25	17	0	5500	0	5500	26
77	0	13	13	0	800	2550	3350	27
78	1	16	12	0	400	*	400	28
79	0	21	*	0	*	*	0	29
80	0	0	*	1	*	*	0	0
81	0	0	*	1	*	*	0	0
82	0	0	*	1	*	*	0	0
83	0	0	*	1	*	*	0	0
84	0	0	*	1	*	*	0	0
85	0	0	*	1	*	0	0	0
86	0	0	*	1	0	0	0	0
87	0	26	15	0	3000	1400	4400	1
88	0	31	20	0	200	1200	1400	2
89	1	38	18	0	700	1200	1900	3
90	0	20	18	0	25	0	25	4
91	0	9	19	0	0	0	0	5
92	0	12	18	0	500	135	635	6
93	0	9	19	0	1300	2146	3446	7
94	*	19	17	0	2800	3246	6046	8
95	0	17	14	0	110	*	110	9
96	0	19	15	0	*	2068	2068	10
97	1	*	*	0	450	2082	2532	11
98	0	19	15	0	280	0	280	12
99	*	26	18	0	0	1200	1200	13
100	0	39	17	0	250	*	250	14
101	0	22	19	0	*	2347	2347	15
102	0	*	*	0	120	3700	3820	16
103	0	27	18	0	300	1676	1976	17
104	0	16	16	0	2275	1973	4248	18
105	0	18	12	0	90	1373	1463	19
106	0	32	11	0	280	1497	1777	20
107	*	26	10	0	1000	900	1900	21
108	0	23	12	0	300	*	300	22
109	0	26	11	0	*	167	167	23
110	0	*	*	0	600	2645	3245	24
111	0	15	11	0	300	0	300	25
112	0	13	11	0	500	0	500	26
113	0	9	11	0	225	1500	1725	27
114	1	10	10	0	31700	1935	33635	28
115	0	24	13	0	400	0	400	29
116	0	6	10	0	0	3662	3662	30
117	0	2	9	0	600	2127	2727	31
118	0	22	6	0	300	30	330	32
119	0	27	9	0	400	503	903	33
120	0	3	11	0	300	2490	2790	34
121	1	14	8	0	400	200	600	35
122	2	7	10	0	600	0	600	36
123	0	12	11	0	0	0	0	37
124	0	0	11	0	0	7135	7135	38
125	0	4	13	0	300	2384	2684	39
126	0	20	14	0	350	1000	1350	40
127	0	23	17	0	200	2552	2752	41
128	0	15	19	0	400	3147	3547	42
129	0	19	16	0	300	2103	2403	43
130	0	30	14	0	1200	1361	2561	44
131	0	13	11	0	2000	973	2973	45

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
132	1	4	11	0	300	1806	2106	46
133	0	6	12	0	400	0	400	47
134	*	6	13	0	0	2678	2678	48
135	0	22	12	0	155	*	155	49
136	0	19	12	0	*	0	0	50
137	0	7	*	0	2500	1500	4000	51
138	0	27	10	0	20	2554	2574	52
139	0	10	15	0	250	2700	2950	53
140	0	12	14	0	0	1609	1609	54
141	1	*	16	0	1750	1597	3347	55
142	0	1	16	0	75	0	75	56
143	0	7	13	0	0	1271	1271	57
144	0	19	14	0	300	1900	2200	58
145	1	10	14	0	150	1995	2145	59
146	0	18	7	0	150	0	150	60
147	*	8	9	0	0	1706	1706	61
148	1	6	14	0	0	*	0	62
149	0	17	13	0	*	17	17	63
150	0	12	*	0	120	*	120	64
151	0	*	15	0	100	0	100	65
152	0	3	13	0	180	2669	2849	66
153	0	7	13	0	200	3500	3700	67
154	*	10	14	0	180	3715	3895	68
155	0	0	15	0	180	*	180	69
156	0	*	16	0	*	3286	3286	70
157	1	15	*	0	1000	1507	2507	71
158	0	13	16	0	400	0	400	72
159	1	15	14	0	0	2317	2317	73
160	2	11	15	0	0	*	0	74
161	0	16	13	0	0	*	0	75
162	0	0	12	2	*	*	0	76
163	0	0	*	2	*	*	0	77
164	0	0	*	2	*	*	0	78
165	0	0	*	2	*	*	0	79
166	1	*	*	2	*	*	0	80
167	2	0	*	0	0	0	0	81
168	3	20	11	0	0	0	0	82
169	4	21	9	0	0	0	0	83
170	5	13	8	0	0	0	0	84
171	6	13	8	0	0	0	0	85
172	0	5	10	0	0	0	0	86
173	0	9	11	0	0	0	0	87
174	0	1	11	0	500	2097	2597	88
175	0	0	8	1	*	*	0	0
176	0	0	*	1	*	*	0	0
177	0	0	*	1	*	*	0	0
178	0	0	*	1	*	*	0	0
179	1	0	*	1	*	*	0	0
180	0	1	*	0	0	0	0	1
181	0	11	6	0	0	0	0	2
182	0	32	6	0	0	1820	1820	3
183	0	7	4	0	119	538	657	4
184	0	25	4	0	180	1500	1680	5
185	0	7	6	0	1400	610	2010	6
186	0	3	6	0	0	670	670	7
187	0	12	10	0	45	2000	2045	8
188	*	7	3	0	400	1000	1400	9
189	0	7	2	0	0	1000	1000	10
190	0	*	*	0	*	*	0	11
191	0	20	0	0	300	2437	2737	12
192	*	3	1	0	0	1500	1500	13
193	0	*	*	0	1017	850	1867	1
194	0	*	1	0	23250	850	24100	2
195	1	36	4	0	0	0	0	3
196	2	17	2	0	0	0	0	4
197	3	11	3	0	0	0	0	5

ROW	COOQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
198	4	13	7	0	0	0	0	6
199	5	23	9	0	0	0	0	7
200	6	31	11	0	0	0	0	8
201	7	16	6	0	0	0	0	9
202	8	22	8	0	0	0	0	10
203	9	28	9	0	0	0	0	11
204	10	20	10	0	0	0	0	12
205	0	20	11	0	7100	3985	11085	13
206	0	*	17	0	*	*	0	14
207	*	*	*	1	*	*	0	0
208	*	*	*	1	*	*	0	0
209	*	*	*	1	*	*	0	0
210	*	18	*	1	404	375	779	0
211	0	16	14	0	0	0	0	1
212	*	*	13	0	*	*	0	2
213	0	39	*	0	250	1110	1360	3
214	0	41	14	0	0	1684	1684	4
215	0	13	13	0	1500	3060	4560	5
216	0	8	10	0	0	15	15	6
217	0	20	9	0	0	4971	4971	7
218	0	18	13	0	900	528	1428	8
219	0	39	11	0	0	544	544	9
220	0	0	10	0	0	0	0	10
221	*	0	*	1	0	0	0	0
222	*	0	*	1	0	0	0	0
223	*	12	*	1	0	1653	1653	0
224	0	32	7	0	0	110	110	1
225	1	29	10	0	0	0	0	2
226	2	22	7	0	0	0	0	3
227	3	*	9	0	*	*	0	4
228	4	10	*	0	0	0	0	5
229	5	24	10	0	0	0	0	6
230	6	7	9	0	0	0	0	7
231	7	30	10	0	0	0	0	8
232	8	*	10	0	*	*	0	9
233	9	36	*	0	0	0	0	10
234	10	*	12	0	*	*	0	11
235	0	30	*	0	0	5095	5095	12
236	0	26	15	0	1500	3379	4879	13
237	0	30	14	0	1000	9450	10450	14
238	*	*	16	0	*	*	0	15
239	0	31	*	0	0	0	0	16
240	0	29	49	0	0	5306	5306	17
241	0	0	17	0	0	0	0	18
242	*	0	*	1	0	0	0	0
243	*	0	*	1	0	0	0	0
244	*	0	*	1	0	0	0	0
245	*	0	*	1	0	0	0	0
246	*	0	*	1	0	0	0	0
247	*	15	*	1	0	0	0	0
248	0	0	18	1	0	0	0	0
249	*	0	*	1	0	0	0	0
250	*	0	*	1	0	0	0	0
251	*	0	*	1	0	0	0	0
252	*	0	*	1	0	0	0	0
253	*	0	*	1	0	0	0	0
254	*	11	*	1	0	0	0	0
255	0	21	17	0	0	3840	3840	1
256	0	41	14	0	30	478	508	2
257	0	0	18	0	0	0	0	3
258	*	0	*	2	0	0	0	4
259	*	0	*	2	0	0	0	5
260	*	0	*	2	0	0	0	6
261	*	53	*	2	0	0	0	7
262	0	0	16	2	0	0	0	8
263	*	28	*	2	0	0	0	9

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
264	1	55	16	0	0	0	0	10
265	0	35	20	0	650	1010	1660	11
266	0	36	22	0	450	4201	4651	12
267	1	37	15	0	0	0	0	13
268	0	21	25	0	600	15789	16389	14
269	1	*	17	0	*	*	0	15
270	2	42	*	0	0	0	0	16
271	0	26	21	0	3400	1532	4932	17
272	0	16	24	0	275	2032	2307	18
273	0	17	27	0	300	6000	6300	19
274	0	24	24	0	650	50	700	20
275	0	17	22	0	10	25	35	21
276	0	16	22	0	360	5135	5495	22
277	0	15	23	0	0	965	965	23
278	0	20	21	0	0	880	880	24
279	1	20	20	0	0	0	0	25
280	2	20	10	0	0	0	0	26
281	0	7	25	0	103	4968	5071	27
282	0	45	21	0	643	1030	1673	28
283	0	19	18	0	143	1447	1590	29
284	0	32	16	0	160	1403	1563	30
285	0	27	13	0	419	6686	7105	31
286	0	11	13	0	150	500	650	32
287	0	10	11	0	100	1695	1795	33
288	0	29	12	0	125	660	785	34
289	0	24	15	0	130	928	1058	35
290	0	18	19	0	225	1150	1375	36
291	0	21	16	0	135	2000	2135	37
292	0	33	12	0	135	2000	2135	38
293	0	32	14	0	130	1160	1290	39
294	0	32	10	0	125	1845	1970	40
295	0	33	11	0	110	2730	2840	41
296	1	37	14	0	0	0	0	42
297	2	0	14	0	0	0	0	43
298	0	21	13	0	150	1801	1951	44
299	0	28	11	0	800	2360	3160	45
300	0	33	15	0	100	3307	3407	46
301	0	33	16	0	884	3031	3915	47
302	0	29	18	0	400	3150	3550	48
303	0	12	18	0	130	1491	1621	49
304	0	26	15	0	187	170	357	50
305	0	38	28	0	250	1650	1900	51
306	0	24	29	0	500	5221	5721	52
307	0	43	19	0	150	5000	5150	53
308	0	12	15	0	150	1402	1552	54
309	0	37	17	0	100	1073	1173	55
310	0	12	15	0	0	380	380	56
311	0	12	18	0	50	2767	2817	57
312	0	20	13	0	120	1530	1650	58
313	0	29	10	0	200	6608	6808	59
314	0	31	9	0	120	3071	3191	60
315	0	16	11	0	101	571	672	61
316	0	30	14	0	136	1100	1236	62
317	0	16	13	0	225	597	822	63
318	0	7	13	0	120	2270	2390	64
319	1	19	11	0	0	0	0	65
320	0	21	18	0	500	2860	3360	66
321	0	19	14	0	400	2506	2906	67
322	0	30	16	0	110	1922	2032	68
323	0	16	15	0	750	3061	3811	69
324	0	5	19	0	0	255	255	70
325	0	9	19	0	750	1275	2025	71
326	0	14	17	0	100	210	310	72
327	0	20	16	0	300	1914	2214	73
328	0	31	17	0	500	625	1125	74
329	0	28	19	0	200	1640	1840	75

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
330	0	24	18	0	200	300	500	76
331	0	6	20	0	0	1920	1920	77
332	0	12	17	0	300	1815	2115	78
333	0	12	17	0	1789	3200	4989	79
334	0	2	18	0	250	2000	2250	80
335	0	36	21	0	1129	1150	2279	81
336	0	14	15	0	12	1150	1162	82
337	0	14	18	0	2110	4000	6110	83
338	0	11	18	0	11	1690	1701	84
339	1	54	20	0	0	0	0	85
340	0	16	18	0	1000	2505	3505	86
341	0	37	15	0	301	5520	5821	87
342	0	28	18	0	0	2513	2513	88
343	0	15	16	0	48	1790	1838	89
344	0	35	20	0	0	3339	3339	90
345	0	5	18	0	32	3144	3176	91
346	0	6	18	0	500	1125	1625	92
347	*	*	16	0	*	*	0	93
348	0	17	*	0	473	2642	3115	94
349	0	11	14	0	1500	493	1993	95
350	0	24	15	0	5028	6506	11534	96
351	0	8	15	0	362	4674	5036	97
352	0	7	17	0	1359	2913	4272	98
353	1	6	18	0	0	0	0	99
354	2	4	15	0	0	0	0	100
355	0	18	15	0	0	1558	1558	101
356	0	0	11	0	0	0	0	102
357	0	0	*	1	0	0	0	0
358	0	0	*	1	0	0	0	0
359	0	28	*	1	0	0	0	0
360	0	0	19	1	0	0	0	0
361	0	0	*	1	0	0	0	0
362	0	5	*	1	0	0	0	0
363	1	22	16	0	0	0	0	1
364	0	16	13	0	40	324	364	2
365	0	18	17	0	439	4101	4540	3
366	0	9	15	0	1049	3927	4976	4
367	0	16	10	0	338	2865	3203	5
368	0	5	9	0	60	1957	2017	6
369	0	10	10	0	2541	2300	4841	7
370	0	5	11	0	105	2701	2806	8
371	0	14	8	0	60	1183	1243	9
372	0	4	7	0	170	3000	3170	10
373	1	17	8	0	0	0	0	11
374	0	20	8	0	0	2442	2442	12
375	0	15	8	0	140	7600	7740	13
376	0	16	10	0	0	1180	1180	14
377	0	5	11	0	20	985	1005	15
378	0	15	11	0	160	0	160	16
379	12	10	10	0	0	0	0	17
380	3	7	11	0	0	0	0	18
381	4	1	13	0	0	0	0	19
382	5	2	11	0	0	0	0	20
383	6	3	12	0	0	0	0	21
384	*	*	12	0	*	*	0	22
385	0	*	*	*	19	32	51	1
386	*	*	0	0	*	*	0	2
387	0	*	*	0	50	0	50	3
388	1	*	0	0	*	*	0	4
389	2	28	*	0	0	0	0	5
390	3	*	1	0	0	0	0	6
391	4	9	3	0	*	*	0	7
392	5	*	*	0	*	*	0	8
393	6	*	*	0	0	0	0	9
394	7	18	13	0	*	*	0	10
395	0	*	*	0	*	*	0	11

ROW	CODQVOD	Cannib	NQPAHP	Inport	Cargo	Mail	Tweight	DaysPort
396	1	*	*	0	350	850	1200	12
397	2	20	13	0	*	*	0	13
398	0	*	*	0	*	*	0	14
399	0	*	*	0	490	2300	2790	15
400	0	20	13	0	800	1200	2000	16
401	0	7	19	0	1060	600	1660	17
402	0	14	16	0	275	3850	4125	18
403	0	25	20	0	*	*	0	19
404	0	0	*	1	*	*	0	0
405	0	0	*	1	*	*	0	0
406	1	0	*	1	0	0	0	0
407	2	27	18	0	0	0	0	1
408	3	13	17	0	0	0	0	2
409	4	38	23	0	0	0	0	3
410	5	50	23	0	0	0	0	4
411	6	24	25	0	0	0	0	5
412	7	47	24	0	*	*	0	6
413	8	*	*	0	0	0	0	7
414	9	11	26	0	0	0	0	8
415	0	42	25	0	0	0	0	9
416	0	20	*	0	2100	2360	4460	10
417	0	41	26	0	2100	2000	4100	11
418	0	27	24	0	6600	7540	14140	12
419	0	15	22	0	6000	1000	7000	13
420	0	12	21	0	2700	0	5700	14
421	0	27	21	0	420	1297	1717	15
422	1	15	22	0	851	3785	4636	16
423	0	29	22	0	1000	800	1800	17
424	0	33	18	0	500	600	1100	18
425	0	23	17	0	200	4000	4200	19
426	0	35	16	0	600	3500	4100	20
427	0	22	24	0	300	1700	2000	21
428	2	26	28	0	4166	3484	7650	22
429	0	29	21	0	0	0	0	23
430	0	17	22	0	2100	1300	3400	24
431	1	28	29	0	2475	1850	4325	25
432	2	21	30	0	0	0	0	26
433	0	22	26	0	0	0	0	27
434	0	28	28	0	4500	3900	8400	28
435	1	29	27	0	2260	7100	9360	29
436	0	0	26	0	0	0	0	30
437	0	11	27	0	0	0	0	31
438	0	7	27	0	260	12110	12370	32
439	0	14	28	0	0	7000	7000	33
440	0	4	27	0	900	4000	4900	34
441	1	22	27	2	0	*	0	35
442	2	0	*	2	0	0	0	36
443	0	4	26	0	0	0	0	37
444	0	22	22	0	140	0	140	38
445	0	29	23	0	110	3800	3910	39
446	1	40	23	0	100	50	150	40
447	0	43	23	0	0	0	0	41
448	0	11	34	2	*	*	0	42
449	0	0	*	2	*	*	0	43
450	0	0	*	2	*	0	0	44
451	0	3	22	2	*	*	0	45
452	1	0	*	2	*	0	0	46
453	0	2	24	0	990	0	990	47
454	0	9	22	0	0	5190	5190	48
455	0	12	23	1	200	*	200	0
456	0	0	*	1	*	*	0	0
457	0	0	*	1	*	*	0	0
458	0	7	20	1	*	*	0	0
459	0	0	*	1	*	*	0	0
460	0	0	*	1	*	*	0	0
461	0	0	*	1	*	*	0	0

ROW	CODGVOD	Cannib	NGPAHP	Inport	Cargo	Mail	Tweight	DaysPort
462	1	0	*	1	*	*	0	0
463	0	0	*	1	*	*	0	0
464	0	11	23	0	*	*	0	1
465	0	18	24	0	0	3000	3000	2
466	1	29	18	0	0	2200	2200	3
467	2	27	22	0	200	4800	5000	4
468	3	39	22	0	1390	0	1390	5
469	4	43	23	0	600	0	600	6
470	0	42	19	0	0	0	0	7
471	0	12	20	0	0	0	0	8
472	0	8	17	0	0	3750	3750	9
473	0	27	22	0	0	1400	1400	10
474	0	16	21	0	500	3800	4300	11
475	0	55	21	0	1200	1900	3100	12
476	0	25	24	0	2100	1800	3900	13
477	0	26	24	0	1100	1200	2300	14
478	1	28	24	0	1000	2020	3020	15
479	0	23	20	0	0	2200	2200	16
480	0	23	20	0	1400	0	1400	17
481	0	12	16	0	1400	2300	3700	18
482	0	16	9	0	0	3200	3200	19
483	0	20	14	0	831	3000	3831	20
484	1	29	16	0	0	3800	3800	21
485	0	12	15	0	100	3400	3500	22
486	0	23	13	0	300	0	300	23
487	*	12	16	0	1800	2500	4300	24
488	0	13	15	0	0	1800	1800	25
489	0	21	15	0	450	*	450	26
490	0	0	*	0	615	2900	3515	27
491	1	35	13	0	*	3500	3500	28
492	0	29	9	0	800	3000	3800	29
493	0	24	11	0	0	0	0	30
494	1	22	9	0	300	6500	6800	31
495	0	12	11	0	0	5500	5500	32
496	0	26	12	0	700	0	700	33
497	0	8	12	0	800	5600	6400	34
498	0	28	18	0	0	3000	3000	35
499	0	10	22	0	1000	1800	2800	36
500	0	33	19	0	1000	1266	2266	37
501	0	18	20	0	100	66	166	38
502	0	11	24	0	0	1945	1945	39
503	1	10	20	0	200	1600	1800	40
504	0	14	23	0	100	5500	5600	41
505	0	20	22	0	1000	0	1000	42
506	0	30	20	0	300	1400	1700	43
507	0	26	21	0	0	2200	2200	44
508	0	11	19	0	0	1800	1800	45
509	0	21	21	0	1900	1000	2900	46
510	0	32	20	0	2400	1000	3400	47
511	1	17	20	0	1200	7500	8700	48
512	2	26	19	0	1200	4000	5200	49
513	0	3	17	0	1800	0	1800	50
514	*	7	19	0	500	0	500	51
515	0	1	17	0	0	2700	2700	52
516	0	19	17	0	0	*	0	53
517	0	0	*	0	1800	600	2400	54
518	1	28	20	0	*	1100	1100	55
519	0	11	19	0	1800	1400	3200	56
520	0	41	20	0	154	0	154	57
521	0	12	22	0	1800	750	1550	58
522	0	2	22	0	0	2460	2460	59
523	0	7	21	0	0	1600	1600	60
524	0	9	29	0	1840	1600	3440	61
525	0	26	23	0	650	1200	1850	62
526	*	8	22	0	650	1062	1712	63
527	0	12	20	0	1800	900	2700	64

ROW	CODQVOD	Cannib	NQPAWP	Inport	Cargo	Mail	Tweight	DaysPort
528	1	10	11	0	1575	*	1575	65
529	0	0	*	0	800	400	1200	66
530	0	26	17	0	*	0	0	67
531	0	18	18	0	1100	3000	4100	68
532	0	14	15	0	0	800	800	69
533	0	9	16	0	6000	1000	7000	70
534	0	12	18	0	240	1860	2100	71
535	0	16	17	0	1000	1800	2800	72
536	0	4	12	0	1000	1100	2100	73
537	0	24	13	0	100	1600	1700	74
538	0	13	13	0	200	1100	1300	75
539	0	21	13	0	700	1100	1800	76
540	0	11	13	0	900	1362	2262	77
541	0	16	16	0	600	900	1500	78
542	0	9	13	0	400	800	1200	79
543	0	17	11	0	800	1500	2300	80
544	0	16	16	0	600	1100	1700	81
545	0	26	14	0	400	1100	1500	82
546	1	26	14	0	800	800	1600	83
547	0	8	12	0	800	800	1600	84
548	0	4	16	0	200	0	200	85
549	0	6	16	0	500	11500	12000	86
550	0	27	19	0	0	1000	1000	87
551	1	21	14	0	700	800	1500	88
552	0	21	17	0	800	6300	7100	89
553	0	12	20	0	700	0	700	90
554	0	6	25	0	600	1300	1900	91
555	1	12	22	0	0	2100	2100	92
556	1	14	19	0	2200	1265	3465	93
557	2	10	20	0	1200	0	1200	94
558	0	5	18	0	600	0	600	95
559	0	7	17	0	0	3000	3000	96
560	0	16	16	0	0	4000	4000	97
561	1	19	20	0	1800	3500	5300	98
562	2	23	20	0	500	*	500	99
563	0	*	*	0	2600	0	2600	100
564	1	18	16	0	*	1500	1500	101
565	0	5	15	0	0	0	0	102
566	0	32	22	0	1800	100	1900	103
567	1	12	19	0	1000	2500	3500	104
568	0	12	19	0	0	0	0	105
569	0	3	18	2	0	*	0	106
570	0	*	*	2	*	*	0	107
571	0	*	*	2	*	*	0	108
572	0	*	*	2	*	*	0	109
573	0	*	*	2	*	*	0	110
574	0	*	*	2	*	0	0	111
575	1	3	16	2	0	0	0	112
576	2	1	16	0	0	0	0	113
577	0	11	15	0	0	0	0	114
578	0	*	11	0	0	600	600	115
579	0	*	13	0	600	2800	3400	116
580	0	*	11	0	125	2500	2625	117
581	0	6	7	0	1600	*	1600	118
582	0	0	*	1	0	*	0	0
583	0	16	7	1	0	*	0	0
584	0	2	*	1	0	*	0	0
585	0	4	*	1	0	*	0	0
586	0	4	6	0	0	*	0	1
587	1	6	*	0	0	780	780	2
588	2	15	5	0	240	0	240	3
589	3	22	5	0	0	0	0	4
590	0	8	5	0	0	*	0	5
591	0	3	*	0	*	1000	1000	6
592	0	7	7	0	0	100	100	7
593	1	14	5	0	*	0	0	8

ROW	CODQVOO	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
594	2	18	4	0	100	0	100	9
595	3	8	5	0	0	0	0	10
596	4	0	6	0	0	0	0	11
597	*	0	5	0	0	*	0	12
598	0	*	*	0	0	0	0	1
599	1	*	0	0	0	0	0	2
600	2	18	4	0	0	0	0	3
601	3	9	7	0	0	0	0	4
602	4	*	*	0	0	0	0	5
603	0	10	6	0	533	863	1396	6
604	0	11	10	0	0	450	450	7
605	0	34	7	0	624	700	1324	8
606	0	14	11	0	380	4001	4381	9
607	0	18	13	0	540	1044	1584	10
608	0	13	11	0	275	1495	1770	11
609	0	23	10	0	0	276	276	12
610	0	21	12	0	610	1500	2110	13
611	0	8	11	0	290	700	990	14
612	0	24	13	0	*	*	0	15
613	*	*	*	1	*	*	0	0
614	*	*	*	1	*	*	0	0
615	*	*	*	1	*	*	0	0
616	*	*	*	1	0	0	0	0
617	1	8	9	0	0	0	0	1
618	2	20	9	0	0	0	0	2
619	3	39	13	0	0	0	0	3
620	4	10	16	0	*	*	0	4
621	5	*	*	0	0	0	0	5
622	6	12	15	0	0	0	0	6
623	7	16	15	0	0	0	0	7
624	0	13	17	0	1600	*	1600	8
625	*	26	17	0	*	*	0	9
626	0	18	20	0	354	1600	1954	10
627	0	11	21	0	5900	2500	8400	11
628	0	11	12	0	1560	0	1560	12
629	0	15	18	0	229	2155	2384	13
630	0	16	19	0	3292	646	3938	14
631	0	17	16	0	106	2728	2834	15
632	0	12	17	0	1832	2300	4132	16
633	0	11	17	1	*	*	0	0
634	*	*	*	1	*	*	0	0
635	*	*	*	1	*	*	0	0
636	*	*	*	1	*	*	0	0
637	*	*	*	1	*	0	0	0
638	*	7	19	0	*	0	0	1
639	0	*	*	0	556	2427	2983	2
640	0	37	20	0	1559	703	2262	3
641	0	17	16	0	*	*	0	4
642	*	*	*	0	*	*	0	5
643	*	*	*	2	*	*	0	6
644	*	*	*	2	*	*	0	7
645	*	*	*	2	*	0	0	8
646	1	25	31	0	0	0	0	9
647	2	7	26	0	0	0	0	10
648	0	44	32	0	1015	1706	2721	11
649	0	0	32	0	1548	5487	7035	12
650	0	67	30	0	992	2680	3672	13
651	0	18	33	0	0	608	608	14
652	0	27	27	0	783	200	983	15
653	0	30	22	0	0	0	0	16
654	0	26	23	0	475	2121	2596	17
655	0	9	18	0	1027	1336	2363	18
656	0	33	16	0	2825	1336	4161	19
657	0	11	18	0	328	221	549	20
658	0	21	20	0	251	171	422	21
659	0	31	23	0	1152	167	1319	22

ROW	CODQVOD	Cannib	NQPAWP	Inport	Cargo	Mail	Tweight	DaysPort
660	0	25	26	0	278	87	365	23
661	0	11	33	0	396	373	769	24
662	0	26	31	0	1830	50	1880	25
663	0	34	*	0	*	0	0	26
664	1	*	32	0	0	0	0	27
665	0	25	31	0	729	2254	2983	28
666	0	24	28	0	4618	1477	6095	29
667	0	17	32	0	279	2277	2556	30
668	0	12	32	0	729	2277	3006	31
669	0	40	35	0	473	1574	2047	32
670	1	17	35	0	0	0	0	33
671	0	21	34	0	684	1137	1821	34
672	0	1	32	0	768	2541	3309	35
673	0	32	32	0	1543	10311	11854	36
674	0	32	28	0	130	1645	1775	37
675	0	15	31	0	488	2988	3476	38
676	0	27	29	0	596	1556	2152	39
677	0	13	25	0	2985	3670	6655	40
678	0	40	29	0	430	4256	4686	41
679	0	18	26	0	780	2118	2898	42
680	0	22	26	0	727	4259	4986	43
681	0	21	27	0	823	1144	1967	44
682	0	33	32	0	43	1681	1724	45
683	1	21	30	0	0	0	0	46
684	2	30	32	0	0	0	0	47
685	0	11	29	0	744	3426	4170	48
686	1	23	*	0	0	*	0	49
687	0	*	*	2	0	*	0	50
688	0	*	28	2	0	0	0	51
689	1	8	*	2	0	*	0	52
690	2	*	*	2	0	*	0	53
691	3	*	29	2	0	*	0	54
692	0	4	31	0	691	948	1639	55
693	*	29	*	0	0	*	0	56
694	0	*	30	0	453	1891	2344	57
695	0	30	27	0	1304	5095	6399	58
696	0	13	28	0	349	365	714	59
697	0	23	27	0	1202	20308	21510	60
698	0	23	25	0	1434	5132	5134	61
699	0	19	21	0	130	1808	3242	62
700	0	16	23	0	774	1862	1992	63
701	0	11	21	0	224	1831	2605	64
702	0	27	22	0	99	1246	1470	65
703	0	23	26	0	187	1848	1947	66
704	0	15	22	0	708	1331	1518	67
705	0	26	28	0	3386	2873	3581	68
706	0	33	29	0	215	1507	4893	69
707	0	6	26	0	468	1225	1440	70
708	0	28	21	0	1238	1949	2417	71
709	0	25	20	0	184	1626	2864	72
710	0	42	20	0	367	1354	1538	73
711	1	15	*	0	0	0	367	74
712	2	*	30	0	0	0	0	75
713	0	36	20	0	246	1014	1014	76
714	0	7	28	0	557	1068	1314	77
715	*	19	*	0	0	0	557	78
716	0	*	25	0	892	2601	2601	79
717	0	36	26	0	207	1557	2449	80
718	0	16	28	0	565	2316	2523	81
719	0	24	33	0	2869	6954	7519	82
720	0	15	34	0	125	2527	5396	83
721	0	16	30	0	0	3360	3485	84
722	0	21	32	0	750	6525	6525	85
723	0	50	31	0	760	1215	1965	86
724	0	35	27	0	497	1240	2000	87
725	0	15	27	0	543	2136	2633	88

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
726	0	20	36	0	378	1273	1816	89
727	0	16	35	0	451	2584	2962	90
728	0	20	32	0	524	2489	2940	91
729	0	[illegible]	30	0	2061	2926	3450	92
730	0	[illegible]	35	0	277	1267	3328	93
731	0	[illegible]	34	0	135	1582	1859	94
732	0	[illegible]	38	0	526	1106	1241	95
733	0	[illegible]	37	0	4183	2985	3511	96
734	1	44	39	0	0	0	4183	97
735	0	9	35	0	840	999	999	98
736	0	7	36	0	708	2047	2887	99
737	0	6	29	0	600	1384	2062	100
738	0	26	34	0	1686	5092	5692	101
739	0	14	31	0	2800	3680	5336	102
740	0	25	29	0	451	4865	7665	103
741	0	21	30	0	0	1455	1906	104
742	1	20	29	0	0	0	0	105
743	2	13	28	0	0	0	0	106
744	3	3	28	0	0	0	0	107
745	4	20	*	0	0	0	0	108
746	*	*	*	2	0	0	0	109
747	*	*	*	2	0	0	0	110
748	*	*	*	2	0	0	0	111
749	*	*	*	2	0	0	0	112
750	*	*	29	2	0	0	0	113
751	1	20	24	0	0	0	0	114
752	2	13	21	0	0	0	0	115
753	3	37	18	0	0	0	0	116
754	0	25	21	0	415	1590	1590	117
755	0	21	21	0	517	2097	2512	118
756	0	6	19	0	2263	1718	2232	119
757	0	17	18	0	556	797	3060	120
758	0	14	18	0	399	2100	2656	121
759	0	6	*	1	0	*	399	0
760	*	*	17	1	0	0	0	0
761	1	1	16	0	0	0	0	1
762	*	10	*	0	0	*	0	2
763	0	*	17	0	5	569	569	3
764	0	33	21	0	0	1104	1109	4
765	*	25	*	0	0	*	0	5
766	0	*	12	0	0	120	120	6
767	0	22	12	0	0	650	650	7
768	0	26	12	0	0	1500	1500	8
769	1	23	11	0	0	0	0	9
770	2	20	9	0	0	0	0	10
771	0	12	8	0	883	1620	1620	11
772	0	10	9	0	48	1800	2683	12
773	*	*	*	0	0	0	0	1
774	1	*	0	0	0	0	0	2
775	2	20	0	0	0	0	0	3
776	3	31	1	0	0	0	0	4
777	4	8	1	0	0	0	0	5
778	5	125	1	0	0	0	0	6
779	0	21	3	0	0	417	417	7
780	1	27	3	0	0	0	0	8
781	2	0	3	0	0	0	0	9
782	3	36	6	0	0	0	0	10
783	4	16	9	0	0	0	0	11
784	0	22	10	0	370	8025	8395	12
785	1	6	11	0	0	0	0	13
786	2	13	11	0	*	*	0	14
787	3	*	*	0	0	0	0	15
788	4	12	9	0	*	*	0	16
789	0	21	14	0	200	1035	1235	17
790	1	31	6	0	0	0	279	18
791	0	17	6	0	279	2800	4761	19

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
792	0	4	9	0	1961	600	600	20
793	1	13	8	0	0	0	300	21
794	0	7	7	0	300	5350	6277	22
795	0	11	8	0	927	2665	3170	23
796	0	11	9	0	505	2721	3648	24
797	0	7	9	0	927	800	1305	25
798	0	12	5	0	1065	2500	3837	26
799	*	3	8	1	*	*	1065	0
800	*	*	*	1	*	*	0	0
801	*	*	*	1	*	*	0	0
802	*	*	8	1	*	*	0	0
803	1	*	10	0	*	*	0	1
804	0	33	13	0	0	1111	1111	2
805	0	21	13	0	168	1000	1000	3
806	0	18	11	0	433	295	463	4
807	0	13	10	0	1468	151	584	5
808	0	20	7	0	382	70	1538	6
809	0	14	11	0	1211	3	385	7
810	0	8	13	0	222	0	1211	8
811	0	0	14	0	626	3800	4022	9
812	0	6	12	0	330	817	1443	10
813	0	16	14	0	905	2179	2509	11
814	0	14	13	0	146	4283	5188	12
815	0	15	16	0	176	2400	2546	13
816	0	23	15	0	467	2611	2787	14
817	0	23	14	0	624	1374	1841	15
818	0	20	14	0	1166	3508	4132	16
819	0	13	13	0	580	1612	2778	17
820	0	14	11	0	123	2363	2943	18
821	0	20	13	0	330	1412	1535	19
822	0	12	11	0	383	1173	1503	20
823	0	18	12	0	260	1126	1509	21
824	1	30	10	0	0	0	260	22
825	2	5	14	0	0	0	0	23
826	0	13	16	0	218	1551	1551	24
827	1	29	15	0	2074	1628	1846	25
828	2	9	14	0	2472	1826	3900	26
829	3	21	15	0	552	1815	3287	27
830	4	20	15	0	1788	1900	2452	28
831	5	10	14	0	380	1668	3456	29
832	6	18	13	0	420	3183	3563	30
833	0	15	12	0	1053	1541	1961	31
834	0	2	13	0	898	1911	2964	32
835	0	9	15	0	*	*	898	33
836	0	10	12	0	162	2200	2200	34
837	0	24	13	0	276	1202	1364	35
838	0	11	11	0	0	4187	4463	36
839	1	1	10	0	0	0	0	37
840	2	5	9	0	0	0	0	38
841	0	0	9	0	259	2040	2040	39
842	0	11	9	0	0	798	1057	40
843	0	36	9	0	288	465	465	41
844	0	22	11	0	473	1423	1711	42
845	0	17	11	0	898	3349	3822	43
846	0	21	11	0	216	1623	2521	44
847	0	14	11	0	0	3766	3982	45
848	0	7	12	0	*	*	0	46
849	*	*	*	2	*	*	0	47
850	*	*	*	2	*	*	0	48
851	*	*	*	2	*	*	0	49
852	*	*	*	2	*	*	0	50
853	*	*	*	2	907	2645	2645	51
854	0	2	12	2	0	0	907	52
855	0	9	9	2	454	2606	2606	53
856	0	12	12	0	131	2287	2741	54
857	*	19	10	0	*	*	131	55

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
858	0	*	*	0	669	3641	3641	
859	0	19	9	0	465	1656	2325	56
860	0	7	11	0	500	0	465	57
861	0	11	13	0	1479	1923	2423	58
862	0	19	14	0	273	3251	4730	59
863	0	20	14	0	249	3251	3524	60
864	0	7	14	0	301	1990	2239	61
865	0	36	15	0	465	1990	2291	62
866	0	20	11	0	806	2298	2763	63
867	0	5	14	0	96500	4000	4806	64
868	0	3	12	0	654	981	97481	65
869	0	18	14	0	454	1153	1807	66
870	0	15	18	0	35	2113	2567	67
871	0	14	11	0	252	177	212	68
872	0	0	12	0	880	2379	2631	69
873	0	22	11	0	473	2569	3449	70
874	0	10	11	0	258	2925	3398	71
875	0	18	10	0	647	1175	1433	72
876	0	8	8	0	454	1842	2489	73
877	0	8	9	0	1900	1710	2164	74
878	0	6	9	0	4130	3717	5617	75
879	0	15	9	0	4099	3459	7589	76
880	0	15	12	0	*	*	4099	77
881	*	*	*	0	*	*	0	78
882	*	*	*	2	*	*	0	79
883	*	*	*	2	*	*	0	80
884	*	*	*	2	*	*	0	81
885	0	25	16	2	4760	1365	1365	82
886	0	16	15	0	1880	6028	10788	83
887	0	10	15	0	*	6757	8637	84
888	0	5	14	0	1595	2245	2245	85
889	0	17	15	0	600	7792	9387	86
890	0	21	13	0	800	1500	2100	87
891	0	6	13	0	250	0	800	88
892	1	1	11	0	0	0	250	89
893	0	3	11	0	1500	3677	3677	90
894	0	15	10	0	0	2941	4441	91
895	0	20	9	0	1625	4217	4217	92
896	1	21	8	0	*	*	0	93
897	*	*	*	1	0	0	0	94
898	0	2	8	1	*	*	0	0
899	*	*	*	1	*	*	0	0
900	*	*	*	1	*	*	0	0
901	*	*	*	1	0	0	0	0
902	1	*	11	1	0	0	0	0
903	0	14	10	0	0	325	325	0
904	0	0	10	0	0	560	560	1
905	0	9	9	0	101	3540	3641	2
906	0	15	12	0	0	2000	2500	3
907	0	14	12	0	500	1500	1537	4
908	0	13	10	0	37	600	600	5
909	1	2	10	0	0	0	0	6
910	2	13	6	0	0	0	0	7
911	3	4	7	0	0	0	1	8
912	0	4	8	0	1	500	500	9
913	*	0	7	0	*	*	0	10
914	*	*	*	0	*	*	0	11
915	*	*	*	0	*	*	0	12
916	0	*	0	0	704	1178	1882	1
917	0	4	3	0	212	125	337	2
918	0	7	5	0	165	20	185	3
919	0	21	4	0	0	0	0	4
920	0	21	6	0	0	0	0	5
921	1	5	5	0	0	0	0	6
922	2	7	3	0	0	0	0	7
923	0	8	3	0	0	1210	1210	8
								9

ROW	CODQVOD	Cannib	NQPAHP	Inport	Cargo	Mail	Tweight	DaysPort
924	0	24	4	0	0	854	854	10
925	0	16	2	0	0	795	795	11
926	0	7	3	0	0	575	575	12
927	1	13	3	0	0	0	0	13
928	0	13	4	0	0	315	315	14
929	0	20	6	0	0	200	200	15
930	1	15	3	0	*	*	0	16
931	0	*	*	1	*	*	0	0
932	0	*	6	1	*	*	0	0
933	0	0	*	1	*	*	0	0
934	0	*	*	1	0	0	0	0
935	1	*	7	0	0	0	0	1
936	0	12	6	0	0	580	580	2
937	0	11	3	0	0	200	200	3
938	1	24	11	0	*	*	0	4
939	2	*	*	0	0	0	0	5
940	0	11	9	0	0	964	964	6
941	0	27	15	0	0	2000	2000	7
942	0	18	11	0	0	2775	2775	8
943	0	19	12	0	0	1099	1099	9
944	0	17	12	0	0	1900	1900	10
945	0	15	13	0	0	678	678	11
946	0	20	10	0	0	213	213	12
947	0	19	10	0	0	990	990	13
948	0	11	8	0	10	3250	3260	14
949	1	19	0	0	*	*	0	15
950	0	*	*	1	*	*	0	0
951	0	*	*	1	*	*	0	0
952	0	*	*	1	*	*	0	0
953	0	12	*	1	*	*	0	0
954	0	*	*	1	*	*	0	0
955	0	*	*	1	*	*	0	0
956	0	*	*	1	0	0	0	0
957	1	28	11	0	0	0	0	1
958	0	19	8	0	0	0	0	2
959	0	32	11	0	0	0	0	3
960	0	11	12	0	0	960	960	4
961	0	12	15	0	0	950	950	5
962	1	15	12	0	*	*	0	6
963	0	*	*	2	*	*	0	7
964	0	*	*	2	*	*	0	8
965	0	*	*	2	0	1364	1364	9
966	1	15	13	0	0	0	0	10
967	0	12	11	0	0	0	0	11
968	0	26	11	0	0	2848	2848	12
969	0	21	11	0	0	4930	4930	13
970	0	20	13	0	0	2319	2319	14
971	0	8	13	0	0	1500	1500	15
972	0	10	15	0	0	3408	3408	16
973	0	19	13	0	0	2562	2562	17
974	0	16	13	0	0	1823	1823	18
975	0	27	12	0	*	*	0	19
976	0	*	*	2	*	*	0	20
977	0	*	*	2	*	*	0	21
978	0	*	*	2	*	*	0	22
979	0	*	*	2	0	916	916	23
980	0	13	10	0	0	1838	1838	24
981	0	23	10	0	0	1280	1280	25
982	0	18	12	0	0	2641	2641	26
983	0	11	11	0	0	3894	3894	27
984	1	7	12	0	0	0	0	28
985	1	26	12	0	*	*	0	29
986	2	*	*	0	*	*	0	30
987	0	*	*	0	0	1093	1093	31
988	0	22	18	0	0	1365	1365	32
989	0	3	14	0	0	2325	2325	33

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
990	0	14	20	0	0	7000	7000	34
991	1	20	18	0	0	0	0	35
992	0	12	18	0	0	2102	2102	36
993	0	29	18	0	0	1180	1180	37
994	0	0	22	0	0	2240	2240	38
995	1	13	28	0	0	0	0	39
996	0	7	24	0	0	2228	2228	40
997	1	6	19	0	0	0	0	41
998	0	2	21	0	0	9263	9263	42
999	0	5	19	0	0	2104	2104	43
1000	0	9	18	0	0	1994	1994	44
1001	1	25	17	0	0	0	0	45
1002	0	5	16	0	0	112	112	46
1003	1	29	14	0	0	0	0	47
1004	0	0	14	0	0	3983	3983	48
1005	1	29	14	0	0	0	0	49
1006	2	15	17	0	0	0	0	50
1007	0	13	12	0	0	500	500	51
1008	0	24	16	0	0	1003	1003	52
1009	0	26	13	0	0	13300	13300	53
1010	0	13	13	0	0	2215	2215	54
1011	1	4	10	0	0	0	0	55
1012	1	12	10	0	0	0	0	56
1013	0	13	13	0	0	8432	8432	57
1014	0	15	13	0	0	1365	1365	58
1015	0	17	16	0	0	35	35	59
1016	0	16	12	0	77800	2719	80519	60
1017	0	17	14	0	0	6125	6125	61
1018	1	22	16	0	0	0	0	62
1019	2	4	11	0	0	0	0	63
1020	3	15	14	0	0	0	0	64
1021	4	6	16	0	0	0	0	65
1022	5	2	12	0	0	0	0	66
1023	0	24	15	0	0	0	0	67
1024	0	0	15	0	0	0	0	68
1025	0	20	12	0	*	7935	7935	69
1026	0	27	13	0	1452	3810	5262	70
1027	0	20	12	0	364	1452	1816	71
1028	0	11	13	0	1201	1200	2401	72
1029	0	30	15	0	809	1172	1981	73
1030	1	18	*	0	*	*	0	74
1031	2	0	*	0	*	*	0	75
1032	3	0	*	0	*	*	0	76
1033	4	10	*	0	*	*	0	77
1034	5	*	*	0	*	*	0	78
1035	6	*	*	0	*	*	0	79
1036	7	8	13	0	0	0	0	80
1037	0	11	*	1	*	*	0	0
1038	0	13	*	1	*	*	0	0
1039	0	22	9	1	0	0	0	0
1040	0	26	10	0	0	1625	1625	1
1041	1	38	6	0	0	0	0	2
1042	0	25	6	0	790	4100	4890	3
1043	0	25	8	0	*	3900	3900	4
1044	0	20	12	0	2500	3335	5835	5
1045	0	16	17	0	0	850	850	6
1046	0	43	14	0	59	3010	3069	7
1047	0	*	14	0	1594	5000	6594	8
1048	0	*	14	0	1500	2147	3647	9
1049	0	*	18	0	5996	4989	10985	10
1050	0	*	16	0	365	4375	4740	11
1051	0	*	*	0	*	*	0	12
1052	0	*	*	2	*	*	0	13
1053	0	*	*	2	*	*	0	14
1054	0	*	*	2	*	*	0	15
1055	0	*	*	2	*	*	0	16

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
1056	0	*	*	2	*	*	0	17
1057	0	*	*	2	*	*	0	18
1058	0	*	*	2	*	*	0	19
1059	0	9	*	2	*	*	0	20
1060	0	11	*	2	*	*	0	21
1061	0	18	12	2	0	1768	1768	22
1062	0	19	11	0	0	0	0	23
1063	1	25	13	0	520	7738	8258	24
1064	0	16	14	0	60	2668	2728	25
1065	0	33	17	0	0	4087	4087	26
1066	0	21	15	0	2700	2130	4830	27
1067	0	24	15	0	900	2000	2900	28
1068	0	0	18	0	2035	2100	4135	29
1069	0	23	16	0	1200	4430	5630	30
1070	0	41	17	0	175000	5038	180038	31
1071	0	17	18	0	0	3000	3000	32
1072	0	12	16	0	1200	4259	5459	33
1073	0	4	16	0	3378	2712	6090	34
1074	0	15	17	0	625	2400	3025	35
1075	1	13	16	0	0	0	0	36
1076	0	10	18	1	950	5000	5950	0
1077	0	11	15	0	3838	0	3838	1
1078	0	7	17	0	77200	0	77200	2
1079	0	3	16	0	488	4900	5388	3
1080	0	6	15	0	38	0	38	4
1081	0	0	12	0	1452	1850	3302	5
1082	0	7	13	0	0	35	35	6
1083	1	15	16	0	0	0	0	7
1084	0	6	14	0	*	1396	1396	8
1085	1	20	15	0	0	0	0	9
1086	2	13	15	0	0	0	0	10
1087	3	4	13	0	0	0	0	11
1088	4	1	15	0	0	0	0	12
1089	5	2	15	0	0	0	0	13
1090	6	0	14	0	0	0	0	14
1091	7	10	15	0	0	0	0	15
1092	8	21	15	0	0	0	0	16
1093	9	16	16	0	0	0	0	17
1094	0	7	16	0	490	2235	2725	18
1095	0	6	17	0	282	43	325	19
1096	1	3	15	0	0	0	0	20
1097	2	6	17	0	0	0	0	21
1098	0	0	15	0	1458	1584	3042	22
1099	0	*	15	0	340000	1328	341328	23
1100	1	*	*	0	*	*	0	24
1101	0	*	14	2	0	1700	1700	25
1102	0	0	*	2	*	*	0	26
1103	0	3	*	2	*	*	0	27
1104	0	3	17	2	1000	22000	23000	28
1105	0	20	14	0	0	0	0	29
1106	1	9	12	0	0	0	0	30
1107	2	*	13	0	0	0	0	31
1108	3	*	10	0	0	0	0	32
1109	0	*	8	0	166000	4997	170997	33
1110	0	*	*	0	*	*	0	34
1111	0	11	*	1	*	*	0	0
1112	0	0	*	1	*	*	0	0
1113	0	1	12	1	0	364	364	0
1114	0	8	8	0	0	203	203	1
1115	0	7	5	0	0	337	337	2
1116	0	19	3	0	0	550	550	3
1117	1	12	2	0	0	0	0	4
1118	2	0	4	0	0	0	0	5
1119	3	0	4	0	0	0	0	6
1120	4	*	3	0	0	0	0	7
1121	*	*	*	0	*	*	0	1

ROW	COOQVOO	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
1122	0	*	0	0	1260	1272	2532	2
1123	0	35	1	0	1260	1272	2532	3
1124	0	12	4	0	750	3000	3750	4
1125	0	13	3	0	0	0	0	5
1126	1	7	4	0	0	0	0	6
1127	2	14	4	0	0	0	0	7
1128	0	12	4	0	156	2159	2315	8
1129	0	24	4	0	20	2709	2729	9
1130	0	12	12	0	709	3386	4095	10
1131	0	36	9	0	709	689	1398	11
1132	0	17	11	0	102	0	102	12
1133	0	18	15	0	*	*	0	13
1134	*	*	*	0	718	1311	2029	14
1135	0	18	15	0	204	2198	2402	15
1136	0	20	18	0	0	2500	2500	16
1137	0	13	15	0	1893	11515	13408	17
1138	0	32	10	0	0	0	0	18
1139	1	15	13	0	0	0	0	19
1140	2	34	13	0	*	*	0	20
1141	*	0	*	2	*	*	0	21
1142	*	0	*	2	*	*	0	22
1143	*	0	*	2	1893	*	1893	23
1144	1	8	15	2	0	0	0	24
1145	0	0	14	0	1893	*	1893	25
1146	*	22	16	0	*	*	0	26
1147	0	15	*	0	2330	4365	6695	27
1148	0	21	16	0	2330	*	2330	28
1149	0	30	13	0	2330	*	2330	29
1150	0	26	14	0	2	1400	1402	30
1151	0	27	11	0	*	*	0	31
1152	*	0	*	1	*	*	0	0
1153	*	0	*	1	*	*	0	0
1154	*	0	*	1	*	*	0	0
1155	*	0	*	1	*	*	0	0
1156	*	0	*	1	0	0	0	0
1157	*	0	14	0	*	*	0	1
1158	0	12	12	0	260	100	360	2
1159	0	8	14	0	20	50	70	3
1160	0	85	17	0	0	600	600	4
1161	1	27	18	0	0	0	0	5
1162	*	31	24	0	*	*	0	6
1163	*	26	*	2	*	*	0	7
1164	*	7	*	2	*	*	0	8
1165	*	15	*	2	*	*	0	9
1166	*	10	*	2	*	*	0	10
1167	*	10	*	2	*	*	0	11
1168	*	5	22	0	*	*	0	12
1169	0	5	20	0	0	0	0	13
1170	0	19	19	0	0	0	0	14
1171	0	24	22	0	255	4000	4255	15
1172	0	30	25	0	255	4000	4255	16
1173	0	0	18	0	255	4000	4255	17
1174	*	16	16	0	*	*	0	18
1175	*	13	*	1	*	*	0	0
1176	*	7	*	1	*	*	0	0
1177	*	8	*	1	*	*	0	0
1178	*	15	*	1	*	*	0	0
1179	*	18	10	1	*	*	0	0
1180	*	7	*	0	*	*	0	1
1181	0	*	10	0	450	300	750	2
1182	1	1	10	0	0	0	0	3
1183	0	32	12	0	0	0	0	4
1184	0	32	18	0	20	3328	3348	5
1185	0	27	20	0	2268	4744	7012	6
1186	1	16	24	0	0	0	0	7
1187	2	17	*	0	0	0	0	8

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
1188	3	20	*	0	0	0	0	9
1189	4	20	*	0	0	0	0	10
1190	5	19	*	0	0	0	0	11
1191	6	21	*	0	0	0	0	12
1192	7	5	28	0	0	0	0	13
1193	8	17	22	0	0	0	0	14
1194	9	22	25	0	0	0	0	15
1195	0	28	25	0	35	3300	3335	16
1196	1	37	26	0	252	2812	3064	17
1197	0	25	23	0	250	3926	4176	18
1198	0	12	25	0	260	3700	3960	19
1199	1	31	21	0	0	0	0	20
1200	2	30	24	0	0	*	0	21
1201	3	11	*	0	0	*	0	22
1202	4	0	*	0	0	*	0	23
1203	0	15	*	0	2268	4744	7012	24
1204	0	10	19	0	260	3700	3960	25
1205	*	30	23	0	*	*	0	26
1206	0	21	15	0	1797	3556	5353	27
1207	0	28	18	0	1600	1900	3500	28
1208	*	31	14	2	*	*	0	29
1209	*	18	*	2	*	*	0	30
1210	*	7	*	2	*	*	0	31
1211	*	10	*	0	*	*	0	32
1212	0	8	13	0	841	6000	6841	33
1213	0	7	16	0	5529	4385	9914	34
1214	0	17	14	0	2375	4133	6508	35
1215	0	35	*	0	2268	4744	7012	36
1216	0	21	16	0	2268	4744	7012	37
1217	*	20	17	2	*	*	0	38
1218	*	13	*	2	*	*	0	39
1219	*	9	*	2	*	*	0	40
1220	*	10	*	2	2967	5788	8755	41
1221	1	18	18	2	*	*	0	42
1222	2	0	*	2	0	0	0	43
1223	3	0	14	0	0	0	0	44
1224	0	0	16	0	2967	5788	8755	45
1225	0	3	20	0	4321	1230	5551	46
1226	0	14	25	0	4321	1230	5551	47
1227	0	18	19	0	2789	2601	5390	48
1228	0	30	22	0	1263	6234	7497	49
1229	1	17	*	1	*	*	0	0
1230	*	11	*	1	*	*	0	0
1231	*	0	*	1	*	*	0	0
1232	*	0	*	1	*	*	0	0
1233	*	0	*	1	*	*	0	0
1234	*	0	*	1	*	*	0	0
1235	1	0	15	0	*	*	0	1
1236	*	27	*	0	*	*	0	2
1237	*	*	*	0	*	*	0	3
1238	0	*	15	0	562	2799	3361	4
1239	0	14	15	0	479	1902	2381	5
1240	0	17	16	0	479	*	479	6
1241	0	25	16	0	959	5049	6008	7
1242	0	33	15	0	959	5049	6008	8
1243	0	21	14	0	300	5020	5320	9
1244	0	20	18	0	170	2567	2737	10
1245	1	19	15	0	0	0	0	11
1246	0	27	16	0	0	0	0	12
1247	0	20	21	0	0	0	0	13
1248	0	11	24	0	0	0	0	14
1249	1	34	21	2	*	*	0	15
1250	*	21	*	2	*	*	0	16
1251	*	0	*	2	*	*	0	17
1252	*	0	*	2	*	*	0	18
1253	*	0	*	2	*	*	0	19

ROW	CODQVOD	Cannib	NQPAMP	Inport	Cargo	Mail	Tweight	DaysPort
1254	1	0	13	0				
1255	*	24	*	0	*	*	0	20
1256	*	*	*	0	*	*	0	21
1257	*	*	*	0	*	*	0	22
1258	0	*	16	0	*	*	0	23
1259	1	0	13	0	0	1800	1800	24
1260	*	21	4	0	0	0	0	25
					0	0	0	26

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